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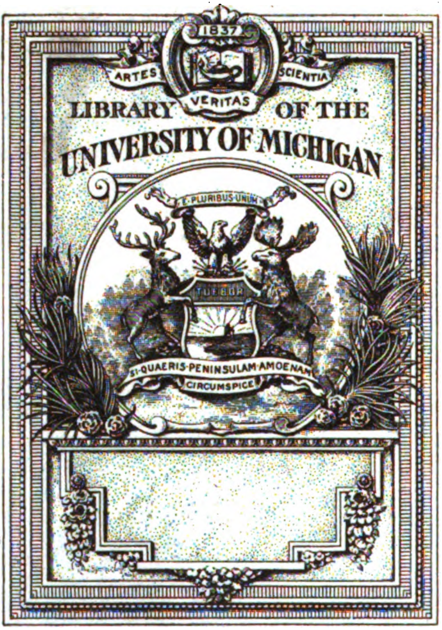

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ROUTINE MANIPULATIONS AND OPERATIONS FROM THE STAND-POINT OF ASEPSIS AND ANTISEPSIS.[1]

BY WM. HERBERT LOWE, D.V.S.,
PATERSON, N. J.
FORMERLY UNITED STATES VETERINARY OFFICER OF THE PORT OF NEW YORK.

IT is certainly a very nice thing to treat a rare disease or to perform some unusual operation, but the success of the average veterinary practitioner depends far more, in my opinion, upon the personal adaptability, the power of observation, introspection, the methods, *modus operandi,* experience, judgment, and dexterity exercised in the routine manipulations and operations of his practice than in the occasional performance of some rare and unusual operation. Too much importance cannot be laid upon intelligent and thorough attention to method and detail in our everyday practice. The principles underlying all surgical procedures are the same, whether the case be the treatment of an ordinary wound or the performance of one of the more difficult and delicate operations known to veterinary science.

Some people are always waiting for an opportunity to do some wonderful thing, and let thousands of little matters go by that, taken advantage of, would have been productive of surprising results. Success comes to the great majority of people by being able and doing ordinary and common things well. The same is true of the surgeon. Compare the number of times you make an examination or dress an ordinary sore or wound to the number of times you are called upon to perform one of the major surgical operations, and you will, I think, agree with me that the routine manipulations and operations are worthy of our consideration at this time and in this place.

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[1] Read at the Thirty-sixth Annual Meeting of the American Veterinary Medical Association, September, 1899.

More attention should be given in our veterinary schools to the training of students in the art as well as the science, and we would not see graduates of the best schools, who are well educated, not able to diagnose and to put into practice what they have been taught, and making mistakes that are evident to laymen, to say nothing of good horsemen.

In the first place, a man should not study veterinary medicine unless he is naturally adapted to the profession. I sometimes see practitioners who, I think to myself, ought to be behind the counter selling calico instead of practising veterinary medicine. The fact is that a man, in order to make a good veterinarian, should understand the habits, functions, nature, and disposition of different animals, how to go around them, to handle, restrain, and control them. He should be a judge of a horse, and a good horseman in the higher sense of the term.

If he has not the natural adaptability and these acquirements he cannot be considered a qualified veterinarian. I do not care how much scientific and other knowledge he may have, or from what college or university he may have graduated, he is out of his element, and cannot successfully cope with the man with natural intuition and characteristics, other things being equal.

There are many difficulties that are constantly confronting the veterinary practitioner that are not met with in the practice of human medicine. Our patients cannot tell us, *in articulate language*, anything. This fact is often referred to by laymen as well as by professional men. They tell us a good deal, however, if we are sufficiently observant and experienced to understand their language. Every attitude, every position of head, body, and limb, and every movement has a significance, and tells to the trained veterinarian the nature and condition of his patient with just as much certainty, yes, often more certainty and accuracy, than the human being tells his physician of his symptoms and ailments.

Another difficulty is that the commercial value of each patient is, as a rule, taken into consideration in determining whether the animal is to have treatment or not, and if treatment to what extent and cost, his commercial value, rather than his necessity, being the chief factor in determining the matter, whereas, in human practice, no commercial value is ever placed upon a patient.

Another difficulty, and the one that should receive the most attention in the consideration of routine manifestations and operations, is the importance and necessity of aseptic and antiseptic measures in all surgical procedures and dressings. In human medicine, again, our brethren have a decided advantage, so far as aseptic and antiseptic precautions and measures are concerned. The principles involved are essentially the same, but their application is far more difficult, and sometimes impossible in veterinary surgery, as the means available to the veterinary surgeon for satisfying the demands of these principles are not equal to those in human practice. Purification of the air where the animal is kept, complete sterilization and prevention of infection, position, rest, and immobilization in our patients, are problems that to a large extent remain to be solved.

Herbert Spencer says that knowledge is useful in proportion to its application. Aseptic and antiseptic principles of science are of real value to the veterinary practitioner only to the extent that he is able and painstaking enough to put these principles into his everyday practice. It is a comparatively easy thing for any modernly educated veterinarian to outline the principles and practice of aseptic and antiseptic surgery, and as a practitioner he may have the disposition, but he will not always have the opportunity and ability to effect complete sterilization of everything on and about his patient.

The chief question at the present time is how to most perfectly bring practice into accord with knowledge, so as to secure the best results in the ever-varying and widely different conditions in our routine work. It is my opinion that it is in the application of scientific facts and doctrines now well understood that the chief achievements in the near future are to be expected. In the past most all, if not all, the attention and credit were given to the skill displayed in the operating and mechanical part, with little or no intelligent care and after-treatment. Fully as much attention should be given to aseptic and antiseptic precautions and methods, for the science of bacteriology has taught us the relations of micro-ŏrganisms to the disturbances of wound healing and the importance of preventing infection in simple as well as in extensive wounds; therefore, asepsis and antisepsis is at the very foundation of all routine manipulations and operations, if science is the handmaid of our art.

Aseptic wounds include all which are preserved from contamination or infection of any kind. An aseptic condition in a wound may be obtained either by the protection the wound received from the first against the access of any septic agent, or by the power of living tissues to resist and destroy septic agents, or by the application to the wound of substances which destroy them. As long as asepsis is maintained no decomposition of the secretions or tissues takes place, no sloughing of killed or partly killed tissue occurs. When the proper cares to favor the nutrition of the wounded tissue are rendered the healing of the wound progresses without pain, inflammation, or suppuration, and the least possible amount of cicatrical tissue is produced. To secure an aseptic condition, or to approach it as nearly as possible, is the first and most important indication in all our surgical work and treatments.

Septic wounds include all in which any agent capable of exciting tissue irritation and cell necrosis lodges and grows. They may present the most widely different degrees of wound disturbances dependent upon the varying conditions which the special wound may present and upon the character of the treatment which is instituted, but in all cases they are attended with some degree of inflammation and suppuration and with sloughing of dead tissue. The septic agent may be introduced by the body that inflicts the wound, or by the dressings that are applied, or may be among the dust particles that float in the air to which it is exposed. In very rare cases it is possible that it may be conveyed to the wound through the blood of the animal sustaining the wound.

There are many modifying influences among animals as to their individual ability to recover from injury or surgical interference. Of animals in apparently good physique and enjoying the same hygienic surroundings and treatment, one will recover from a serious injury or surgical operation speedily and without serious complication, while in the other an injury, apparently much less severe, may end fatally or in prolonged illness.

The power of resisting the effects of extraneous influence to some degree is a characteristic of all living matter. Its cessation is death. The quality of the vital resisting power inherent in the constitution of an animal cannot be estimated by any known signs. It may be modified by other conditions, but in some degree it is always present as a powerful unknown factor influencing the result of any case.

Mental impression, shock from injury, old age, and pre-existing organic disease are factors that influence the result of treatment.

There are constitutional differences, such as plethora, anæmia, obesity, that have to be taken into consideration by the practitioner. The temperament, the breed, œstrum, pregnancy, season of the year, faulty hygienic and sanitary conditions, previous overfeeding, previous underfeeding, exhaustion from overwork, exhaustion from physical strain, deleterious effects of vicious habits; these are some of the more marked examples of influences which, by their effect upon bodily nutrition in general, aggravate and affect the result of all routine manipulations and operations.

Good hygienic conditions, by their relations to the functions of nutrition, exert important influences upon all cases. The stimulating effects of sunlight upon nutrition should be regarded in hygienic management. Next to the necessity of fresh air supply, that of sunlight should be provided in arrangement of hospital wards. There is an instinctive craving for the light innate in all living creatures, which becomes more marked whenever, from any reason, there is a depression of vital power.

Insufficient air is synonymous with impure air, for the purest air, if not renewed with sufficient frequency, becomes speedily contaminated by the exhalations and effete materials from the animals breathing it. This, which is true of those in health, is still more quickly accomplished when the animal is diseased. It becomes, therefore, more important for the well-doing of the sick animal than for the welfare of the well that an unlimited supply of pure air should be provided. When to the natural sources of air-contamination there are added the emanations of suppurating wounds, the need of constant change in the surrounding air is more emphatic still if its purity is to be preserved. While air is the great oxygen-carrier for the needs of the living body, it receives in exchange from the body the débris of its disintegration. It is the vehicle of transportation of an infinite variety of floating matter, the great mass of which is organic in character. Putrescible organic matter cannot long be exposed to the air without becoming the recipient of putrefactive germs from it. Aseptic wounded surfaces quickly become septic when exposed by reason of the floating septic particles that are conveyed. The best stimulant to the vital resisting power of a living tissue, by which the effects of sepsis are antagonized and overcome, is perfectly oxygenized blood. The air thus carries both the bane and the antidote. The practical end, therefore, to be aimed at in any given air-supply is that there shall be as small a proportion of the bane and as large a proportion of the antidote as possible. This involves the removal, the suppression, or the diffusion, as much as possible, of all sources of contamination, and the dilution of that which is unavoidable by the introduction of the largest quantity practicable of the purest air attainable. The purity and the sufficiency of the air are thus seen to have a double relation to the healing of wounds, one in a general relation, which the air shares with other hygienic conditions, and the other a special relation as a carrier of and an antidote to sepsis. The hygienic conditions in the wounded animal must be made as good as possible before the whole duty of the surgeon is accomplished.

The relation of microörganisms to suppurative inflammation is one of great importance in its bearing upon the healing of wounds. While not all forms of microörganisms are capable of exciting suppuration—nor are microörganisms the only agents that are competent to excite suppuration—yet the proof is conclusive that the suppurative diseases that complicate wounds, and the acute suppurative inflammations that occur in animals, are caused by the vital activity of various forms of microörganisms that find in the wounds the conditions that favor their development and increase.

The result to be expected in routine manipulations and operations depends very largely upon the practicability to carry out methods by means of which the access of microörganisms to, or their development in wounds, can be prevented or diminished, for where disturbances of repair are escaped the healing is sure, speedy, and perfect. If septic infection could be altogether prevented there would scarcely be any bounds to the possibilities in the domain of veterinary surgery. No decomposition or fermentation takes place in organic matter without the agency of some form of microörganism, and where no extraneous organism has gained access to a wound no wound disturbance occurs. Certain forms of microörganisms are always found associated with certain forms of wound disturbances. Clinical experience shows that where protection from the invasion of microörganisms is secured there is an immunity from wound disturbances.

The recognition of the activity of microörganisms as the essential cause of disturbances of repair in wounds supplies a scientific basis for treatment and affords a definite principle by which to test methods of wound treatment. It is not the organisms themselves that directly cause wound disturbance, but the irritant products formed in the course of their growth and multiplication, either directly secreted by themselves or formed by the decomposition of the substances on which they feed. These secondary products—ptomaïns—are poisons or septic agents, and the results in general of their action upon the living tissue with which they come in contact constitute sepsis. Whatever tissue or wound surface is uncontaminated by these ptomaïns is in an aseptic condition, and whatever method or means antagonizes their production, or antidotes, restricts, or removes the results of their presence is antiseptic.

The ideal treatment of a wound is that by which a perfectly aseptic condition should be obtained and preserved; where this is impracticable the object of treatment becomes changed to the application of means to diminish the activity of the septic organisms, to secure the rapid removal of their products, and to increase the resisting power of the wounded tissues.

Cleanliness is the very first essential in all our routine work—in fact, there is no such thing as asepsis without absolute cleanliness. I do not know how to sufficiently emphasize the importance and actual necessity of cleanliness in each and every detail, if we expect to obtain the best results possible. Practitioners with unkempt surroundings, and who in their actual daily practice belittle their calling by their disregard of water and their careless toleration of dirt, will not be expected, much less inclined, to carry out the scientific principles laid down in this paper. Fortunately this indifferent and careless class of veterinarians have to give way to the more competent and worthy.

(To be continued.)

MEAT-INSPECTION.

By S. G. Burkholder, M.D., V.S.,
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PROFESSOR OF MEAT-INSPECTION IN THE M'KILLIP VETERINARY COLLEGE.

Meat-inspection is a part of veterinary medicine, the object of which is:

1. To discriminate unwholesome, innutritious, diseased meats from healthy, nutritious, and innocuous meats.

2. To prevent the substitution of carcasses or parts of carcasses of animals not usually used for human food, such as the horse, dog, cat, etc., for the carcasses of cattle, sheep, rabbits, etc.

3. To prevent the carcasses or parts of carcasses or other products of animals that have suffered from some febrile or infectious disease, or are in an advanced stage of pregnancy, from being sold to the unsuspecting public as wholesome meat.

4. To prevent animals suffering from contagious and infectious diseases from mingling with healthy animals or travelling over territories occupied by healthy animals, and thus spread the infection.

Meat-inspection may be divided into a science and an art. The science of meat-inspection consists of:

1. A thorough knowledge of the anatomy and comparative anatomy of cattle, sheep, and swine, as well as of the horse, dog, and other animals sometimes substituted for the former.

2. A thorough knowledge of the nature, symptoms, and pathological changes caused by the various diseases in animals, as well as the significance of these abnormal conditions.

3. A thorough knowledge of the nature of the infectious diseases transmissible from one animal to another or from animals to man, and the mode or channel through which transmission takes place.

The art of meat-inspection is the application of this knowledge in practice, thus preventing the transmission of disease from animal to animal or animal to man.

When we consider the object and importance of meat-inspection we at once realize the responsibilities resting upon the men who have charge of this work. The essential qualifications of a meat-inspector may be summed up as follows:

1. He must have a thorough knowledge of the science and art of meat-inspection.

2. He must be alert and conscientious, always realizing that the destiny and welfare of the public in a measure rests upon his ability and good judgment.

3. He must be resolute, courageous, and unyielding to either threats or bribes.

The importance of these three qualifications and the lamentable fact that they are not possessed by all in the meat-inspection service tempts me to discuss them a little more.

Since the power of making appointments to the Federal Meat-inspection Department has been placed under the ban of civil service the standard of the required qualifications of applicants for positions in this service has been raised, and the result is that the work is more efficient to-day than it ever was at a relatively less cost to the government.

Perhaps the paramount qualification of a meat-inspector is a thorough knowledge of the science and art of meat-inspection.

In the first place, he must be able to recognize the characteristic color, odor, firmness, and anatomical structure of the carcasses of all animals used as food, as well as those animals not used as food, which, however, might be substituted for such animals. For example: Horse meat may be substituted for that of the ox; the carcass of a dog for that of a lamb, etc. Not that the product of these animals would be directly injurious to the health of those consuming them, nevertheless it seems unnatural, and our gustatory sense must undergo a prolonged course of training before we can relish such delicacies.

Of greater importance is a thorough knowledge of diseases of animals, especially those transmissible from one animal to another, or from animals to man. The symptoms and lesions characterizing each disease should be thoroughly understood and recognized, so that proper disposition can be made of the carcass without unnecessarily exposing susceptible animals or man to the disease.

While this may be considered the paramount qualification of the meat-inspector, it is by no means the only requisite. Unless he is conscientious and has the best interest of the public at heart, rather than his monthly check, his services can be easily dispensed with. He must be prompt, watchful, and alert, and investigate every suspicious action of those who might, by eluding his vigil, place upon the market meat that is unwholesome or diseased. The mercenary instinct of man is so strong that for the gain of a few dollars he is tempted to sell to the unsuspecting public meat from animals that are suffering from some infectious disease, as tuberculosis, actinomycosis, etc.

Again, a meat-inspector may be thoroughly competent in knowledge, conscientious, and alert, but he may lack courage and resolution, and yield to the bribes and perhaps threats of those whose conscientious scruples are overshadowed by their avaricious tendencies. Meat-inspectors who lack either ability, conscientiousness, or courage are a source of great danger to the public, and yet I regret to say they exist and will continue to exist as long as political influence is a stronger factor than competence in obtaining and retaining the position of meat-inspector.

Through the operations of the Bureau of Animal Industry, organized in 1884, in the Department of Agriculture, millions of dollars have no doubt been saved each year to the stock-breeders of this country as well as the lives of a number of people.

As early as 1870 the Commissioner of Agriculture recognized the importance of organized and scientific action to control diseases of animals, especially contagious pleuro-pneumonia and Texas fever, which diseases were then prevalent, causing disastrous losses and threatening to rapidly decimate the bovine tribe.

The large majority of veterinarians at that time were ignorant, superstitious empiricists. The few men who had scientific knowledge could not cope with the diseases because they were not supported by the Federal authorities.

In 1877 Congress granted the first appropriation, amounting to $10,000, for the purpose of controlling or eradicating these rapidly spreading diseases.

Dr. D. E. Salmon, of Washington, D. C., was one of the early promoters of this work, and when in 1884 Congress directed the organization of the Bureau of Animal Industry he was appointed chief of the bureau.

The stock-raising industry at this time was in a deplorable state. Our animals had been prohibited entrance into most of the European countries, and the prevalence of contagious pleuro-pneumonia and Texas fever in cattle, hog-cholera in swine, and scab in sheep, seriously interfered with interstate traffic at home, and the stock-raisers were almost panic-stricken. Dr. Salmon went to work at once introducing measures necessary to stop the spread of diseases among animals, and conducted original investigations to obtain further knowledge regarding the nature of these diseases.

The duties of the new bureau were most pressing, and the obstacles with which they had to contend interfered materially with their progress. Perhaps the paramount duty of the bureau at this time was to check and attempt to eradicate contagious pleuro-pneumonia, the disease which was rapidly devastating the bovine tribe, the losses of which amounted to millions of dollars to the stock-raisers. It is a deplorable fact that influential men, even the Commissioner of Agriculture himself, under whom the work was to be conducted, doubted the nature of the disease.

It was not until 1887 that Congress appropriated money and gave authority to purchase and kill all sick and exposed animals. By thus vigorously attacking the disease it was at once under control, and by the early part of 1892 it was considered completely eradicated. Not a single case has been reported since.

The inspection of imported cattle is so thorough and systematic that we have little fear of a fresh invasion. The complete eradication of this fatal and widely disseminated disease in the short period of five years, and with the relatively small expenditure of $1,500,000, is considered a notable achievement, and devolves great credit upon the men who were members of the bureau at that time.

Texas fever is another disease that was playing havoc among the bovines, arousing the government's attention as early as 1868.

The disease existed and its peculiarities were recognized in the latter part of the eighteenth century. Organized action was, however, not taken until after the establishment of the Bureau of Animal Industry.

In 1889 the bureau inaugurated a series of systematic investigations, and by the end of 1890 the nature, cause, and mode of infection of the disease were well understood. The disease has since been held in check, and we hope for a complete eradication at an early date.

Hog-cholera in swine and sheep scab are two other diseases that aroused the attention of the government at an early date, owing to the extensive destruction of animal life and the rapidity with which it spread.

The Bureau of Animal Industry steadily grew from the time of its inception, in 1884, until 1891, when it was found necessary to reorganize it into divisions, so that the work might be better systematized.

In March, 1891, Congress directed the Secretary of Agriculture to make an ante-mortem inspection of all cattle, sheep, and swine killed for foreign and interstate trade, and also authorized him to make a post-mortem inspection at his discretion. In this way the government was enabled to certify to the wholesomeness of exported meats.

At the same time microscopic inspection was inaugurated of all hog products exported to countries demanding microscopic inspection. In this way the confidence of foreign countries in the wholesomeness of our beef and pork products was re-established. The result is that our export trade in animal products is enormous.

This is, however, not all the Bureau of Animal Industry has accomplished. Let us consider a few of the more important contagious diseases and see what has been done in the way of controlling and eradicating them.

First, let us take up hog-cholera. We are all more or less familiar with the disease, and know how exceedingly fatal it is after once it gets into a herd of swine. For several years the bureau has been experimenting with an antitoxic serum with encouraging results. The serum is prepared by inoculating cattle, horses, mules, etc., with filtered, sterile or live cultures of hog-cholera and swine-plague bacilli, respectively, or solutions of their products, including the cell contents, extracts, and secretions. The quantities inoculated at first are small, but are gradually increased until large amounts can be inoculated without bad results. This must be continued for a period of from six to eight months.

The serum obtained from these animals has been used in a number of cases, with the result that about 80 per cent. of animals in diseased herds were saved.

This antitoxin method of treating hog-cholera and swine-plague is as yet in its infancy, but the results are so encouraging that we expect it to be a boon to the hog raiser.

The antitoxin treatment, both preventive and curative, of anthrax and symptomatic anthrax, is probably so well known that it needs no further comment. The mortality of both diseases is considerably reduced by this method of treatment. The percentage of loss from blackleg in herds is said to have been reduced from 10 to 20 per cent. to less than 1 per cent..

Texas fever is another disease that has caused great loss to the stock-raisers, but since the establishment of the Texas fever line and the enforcement of strict quarantine regulations by the bureau, the disease is fairly well under control.

Since it has been proven that the cattle tick (Boophilis bovis) is the transmitting agent of the infection various methods have been tried to destroy the parasite. The most encouraging results have thus far been obtained by dipping the cattle infested with these ticks. Southern cattle may be literally covered with these parasites and yet not suffer from Texas fever, because they have been rendered immune; but if these same ticks, or their progeny rather, find their way upon our Northern cattle they almost invariably transmit the disease.

The fact is now well established that where there are no ticks there will be no Texas fever, unless transmitted by direct inoculation; therefore if the ticks harbored by Southern cattle are destroyed before they mingle with our Northern cattle they will not transmit the disease.

The next object was to discover the best means of ridding Southern cattle from these disease-transmitting parasites. Dipping seems to be the most rational method, and various dipping solutions were tried, with the result that many of the solutions used were almost as destructive to the cattle as to the ticks. Thus far a saturated solution of sulphur in dynamo oil has given the best results. It seems reliable as far as destroying the ticks is concerned, but it is rather severe on the cattle dipped, so that a milder yet equally effective dipping solution would be preferable.

Thus, then, we have a method by which we can bring Southern cattle to our Northern pastures and stockyards with impunity; but the same method will not make it safe to take Northern cattle to Southern pastures until all the ticks south of the Texas fever line are killed, a rather stupendous undertaking.

Since Southern cattle, although literally covered with ticks, remain apparently well while our native cattle exposed to the same parasite usually become afflicted, we know that an immunity can be and is established. Many Southern cattle harbor the Texas fever organisms in their blood and yet show no outward symptoms of disease. If blood from these animals is inoculated into our native cattle they develop the symptoms of Texas fever. This proves not only that there is an immunity established in Southern cattle, but that the neutralizing agent or antitoxin is suspended in the blood of these animals. Why should not the blood-serum taken from Southern cattle and deprived of its active Texas fever organism give us an antitoxin which will, when inoculated into our native cattle, in graduated and repeated quantities, establish complete immunity in the animal treated without transmitting the disease itself? Experiments have been made along this line with encouraging results, and we have good reasons to suppose that some similar method will be found successful and put into practice at an early date.

Sheep-scab is another malady that has been a detriment to stock-raisers for years. The nature of the disease was not positively known until the early part of the present century. Since it is known that it is a parasitic disease, vigorous war has been waged against the mite causing the trouble. The best results thus far have been obtained from the use of dips. It is difficult, however, to prepare a dip that is destructive to the parasites and not injurious to the wool; the tobacco-and-sulphur and lime-and-sulphur dips have probably proven to be the most efficient thus far.

(To be continued.)

OBSERVATIONS ON THE FOOT AND ITS AILMENTS.[1]

By T. W. Scott, V.S.,
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The feet of solipeds are the most important organs of locomotion; and on locomotion depends the whole value of these animals. The idea of a good horse with poor feet is a misnomer. Then if the feet are in reality such important members, rendering the animal practically useful or worthless, according to their soundness or unsoundness, it is certain that the care and treatment of the feet are specifically in the province of the veterinarian. The feet of horses are subject to a multitude of injuries and diseases, and I shall not in this short paper attempt to deal with or even to speak of them all ; but I shall confine myself more particularly to the simpler diseases and injuries to which these members are heir. I shall attempt to show or point out, in the first place, some of the injuries and diseases which result from errors or mistakes in shoeing.

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[1] Read at the Tennessee Veterinary Medical Association, at Nashville, November 8, 1899.

It would be too much to require that veterinarians should be expert horseshoers any more than that physicians should be first-class shoemakers ; but horseshoeing is the orthopedics of veterinary science, and all practitioners should be familiar with the proper application and adjustment of the shoes. Shoes are adjusted to the feet of horses for the sole purpose of protection. That is the object and end of shoeing. To preserve the feet intact and in health, so that the animal can best serve its master, is the use and purpose of shoeing. Horseshoeing, therefore, resolves itself into an exceedingly important science, and requires brains and skill in its correct and proper performance.

I shall now enumerate some of the injuries and ailments which follow the improper application of shoes ; and when I use the term application of shoes I mean the preparation of the foot for the shoe, the preparation of the shoe for the foot, and everything necessary for this somewhat complex operation. Under this heading I shall classify : nail-pricks, corns, burns, or blisters of the sensitive sole from a hot shoe, brittle wall, injuries to sensitive sole from pressure or uneven pressure of shoe, quarter-cracks, toe-cracks, side bones, decayed, wasted, or atrophied frog, contraction of the foot, vertical or perpendicular walls, and interfering, and diseases of the structures of the limbs by reason of irregularities and imperfections in the fitting of the shoes or the manner of preparing the feet.

Nail prick and the injury and consequent lameness produced is a frequent result of shoeing. This is an accident in which the smith should be indulged to some extent, as there are many mitigating circumstances, and the smith should not always be condemned for it, as there are walls which are so badly broken away, and what remains is so thin, that it is practically impossible to drive the nails so that they do not press upon or even penetrate the sensitive laminæ. But there are many nail pricks resulting from carelessness or incompetence on the part of the smith. Proper and expert driving is an art, and the accomplished floor-man can place his nail and tap it, and can tell in an instant by the sound and feel of it under his hammer whether it is passing through sound horn or deviating into the sensitive part. Of course, if the nail presses hard or penetrates the sensitive structures, the animal will tell him very quickly, but a nail may go close and the animal not evince pain at the time, and it may be a day or two, perhaps, before lameness results. Then the veterinarian may be asked to locate the lameness, and this is usually not difficult. And here I want to digress a little while I admonish the veterinarian to have a care, and to be exceedingly careful not to pass the foot without scrutinizing and examining it very particularly, for it is a sad blow and an awful smirch upon the reputation of the veterinarian whenever he overlooks a lesion, no matter how slight, in the foot; for in a few days the animal may be sent to the forge, and the shoer removes the shoe, and by manipulation reveals and points out the real injury or lesion.

The veterinarian should always carry a hoof searcher, and if he cannot satisfy himself fully he should go with his patient to the forge, and there have it carefully examined, or, better still, I think it well that veterinarians should operate a shoeing forge wherever it is practicable. I think it will result in good to the profession of veterinary surgery, good to the horseshoeing industry, and, lastly, an inestimable benefit to the whole equine race.

With reference to the treatment of nail pricks, little need be said. Remove the offending object, dilate the opening, wash out well with a good antiseptic solution, then use Lugol's solution of iodine injected well up into the hole. The foot may be poulticed or soaked in warm water a few times, and usually the shoe can be adjusted in a few days again.

Corns are of two varieties, namely, hard or dry corns, and suppurating corns. They are a direct result of ill-fitting shoes, and especially when the latter have high heel calkings. They are, of course, frequently caused also by the carelessness and negligence of the owner in allowing the shoe to remain on too long until the wall has grown over the shoe and forces the shoe in at the heel, and the consequent pressure, as well as from dirt and sand working under the shoe. But a corn is more frequently produced by narrow fitting, fitting too close at the heel, and again by ill-fitting shoes. For instance, the shoe may bear more heavily at this point than on the balance of the wall, and result in a bruise or corn. The term used by farriers with reference to this is that the shoe is "lying dead" at this point, and is very expressive. Corns frequently produce more or less lameness, and the veterinarian is consulted, and the remarks made above apply with equal emphasis here.

Of course, all foot lameness and injuries present certain characteristic symptoms, but they all present likewise individual symptoms, and the practitioner must locate the point or spot if possible, and in the first place the foot must be critically examined. Nothing inspires more confidence in a client's mind than when the animal under question is walked or trotted off before the examiner, and he remarks at once:

"The lameness is on the right (or the left side, as the case may be), and it has the indications of foot lameness. We will, therefore, examine that member."

The foot is picked up and cleaned out, and the searcher applied. When a corn, the animal evinces pain in either heel and the parts are dry and hot. The examiner has the shoe removed, the dry horn cut away, and the corn presents itself to view, and the veterinarian scores a point or victory, so to speak. For every time that the practitioner gives ocular demonstration of his skill he has won a victory over skepticism, for nearly every client in this region is a skeptic so far as believing that the veterinarian possesses skill or special wisdom, as I suppose you have all doubtless observed.

Corns need not necessarily lay an animal up, for by the proper application of the shoe or by applying a proper shoe correctly the animal can resume work almost at once. Suppurating corns, besides requiring a proper shoe, require also proper treatment, such as opening up well and allowing the escape of pus, washing out with peroxide of hydrogen or other antiseptic, and preventing the collection of pus thereafter. With reference to the character of the shoe for the relief of corns, I think a good bar shoe, taking the weight entirely off the affected quarter, the shoe *par excellence*, so to speak; or the ordinary shoe with the application of the Davy hoof-pad, of which I will present a picture, not having the pad to show. These contrivances are excellent for the relief of corns, but they do not cure, and I believe result in some injury to the feet. I do not like rubber appliances to horses' feet. I despise rubber horseshoes and all rubber pads that cover the sole. They cause dryness and hardness of the foot, with their attendant evils. I take occasion here, also, to remark that I regard all leather soles or rubber soles placed under the shoe and held by the shoe as a positive injury to the horse's feet. They exclude air from the foot, they increase the heat to it, they prevent evaporation and elimination. Pardon me, also, while I pay my respects at this juncture to what I term the vicious practice of oiling the hoofs of horses.

Oiling the hoofs is an injury to them, resulting in dryness, rendering brittle, preventing breathing, evaporation, elimination of impurities and excretions, which the foot will naturally rid itself of for its own protection and benefit. The hoof oiled or smeared with grease will accumulate more dust, dirt, and filth in a given time than one can well imagine. Oiling is practised through ignorance and by smart horseshoers to cover up defects and blunders in shoeing.

I also condemn all hoof ointments which many veterinarians are in the habit of using and prescribing for mercenary purposes. I go so far as to say that the hoof should never be oiled or greased except after soaking. Then and only then is it beneficial. At that time it prevents evaporation, and retains the moisture in the foot, for which the soaking was inaugurated.

I shall not dwell longer on the subject of corns, but shall hope that my remarks may evoke extensive discussion by the members present.

Burns and blisters of the sensitive sole from the application of hot shoes are not of very frequent occurrence, but do occur now and again when the soles are very thin and the fitter does not exercise care in applying the hot shoe, but keeps it applied in the hot state too long or presses too hard. Serious damage is sometimes done in this way, and usually the animal will evince pain at the instant, but there are cases in which the effects are not apparent for a day or so. Then the veterinarian may be called, and may have some difficulty in explaining the exact character of the lesion. The animal will go very lame, and will resemble laminitis if both feet are burnt; if only one, laminitis of one foot, and the cause may be difficult to explain. In these remarks it is not intended that any aspersion or anything derogatory to hot fitting is meant; for I am an advocate of judicious hot fitting, and claim that it is the only practical manner of fitting a shoe, and does no harm when done with proper care and discretion. Cold fitting is impracticable and requires much more time. You can easily understand that it is next to impossible to fit two cold surfaces so that they are the exact counterparts of each other, or so that the two surfaces are in exact apposition. Hunting and Fleming both claim that hot fitting is the only practical fit, and when done with skill and discretion results in no harm if not benefit to the parts. The hot shoe is applied to burn down the little elevations or eminences which are bound to remain after the foot has been prepared as nearly as possible by the smith with rasp and knife, and if the shoe is red, or even at white heat and applied only for an instant, it burns down these elevations and prominent points, bringing the shoe in perfect apposition with the foot, softening the hoof underneath, rendering cutting easier, and facilitating the driving of the nails. Then a certain quantity of water is extracted from the hoof, drying it somewhat, thereby holding the nails more securely. But remember I do not say that indiscriminate hot fitting is wise. The smith must have discretion and knowledge of the parts upon which he is operating.

Brittle walls are often produced by too much rasping of the outer wall, by using nails that are too large, and especially by oiling the feet or by excessive soaking or poulticing, and can be corrected by removing the causes.

Injuries of the sensitive sole are produced by uneven pressure of the shoe, the shoe lying dead at a given point and pressing upon the sole. There is no objection to the shoe pressing upon the sole when the latter is strong and thick, but when it is thin and weak the shoe should be seated out or concaved so that it cannot press on the sole, or the wall should not be removed to the extent that the sole will come in contact with the shoe. Pressure upon thin sole gives rise to lameness, and the veterinarian must determine what the lesion is, and remove it.

Toe- and quarter-cracks are frequently a source of much lameness, but generally come under the supervision of the horseshoer or farrier. They occur in weak-quartered, weak-walled feet, and may be the result of ill-fitting shoes. They can be grown out by proper firing and blistering and adjusting a thin brass plate over the crack with screws, together with the use of a bar shoe, which will invariably prevent lameness and render the animal serviceable.

Wasted frog, perpendicular or vertical walls, and contracted feet are caused by allowing the shoes to remain on too long, by improper preparation of the foot for the shoe, etc.

In shoeing horses it is always of vital importance to prepare the foot so that the frog shall have its function. It should rest upon the ground and receive the jar or shock, and should therefore relieve the balance of the foot, giving it spring and elasticity and preventing slipping ; and any manner of shoeing that interferes with this is wrong and is generally easily corrected.

There are many other accidents and ailments to the feet of horses incident to shoeing which I should like to have touched upon, but the paper is now too voluminous, and I shall trust that you will have anticipated all these.

PERIODIC OPHTHALMIA.[1]

By I. M. Luzader, V.S.,
NOKOMIS, ILL.

This affection is intimately related to certain climates, systems, and soils, and shows a strong tendency to occur again, and usually terminates in blindness from cataract.

Its causes may be said to be primarily in the soil of frequently submerged ground.

Heredity is one of the most potent causes. We know this is very positively demonstrated when both parents have suffered. In support of this we know if a mare had borne a number of foals, all sound, and then suffered an attack of periodic ophthalmia the subsequently born would also suffer. The study of atavism presents many interesting facts in these matters. Unwholesome food and error in feed are undoubtedly predisposing causes.

The symptoms of the disease are those which usually come on very suddenly; perhaps in a single night, a great tenderness in one eye, commonly marked by the eyelids being shut; a copious secretion of tears; the white of the whole anterior chamber dim and clouded, there being no distinct speck on the cornea; the redness of the eyeball is never very remarkable, even when the disease assumes its most aggravated form; the dimness of the anterior chamber increases rapidly, and in two or three days, or even less time, a yellow spot usually appears at the bottom of that cavity, arising from a formation of pus; after lasting from seven to twenty-one days the inflammation and watering usually begins to gradually subside, and absorption usually requires from twelve to fifteen days.

The recurrence is the characteristic of the affection, and it will recur again and again until total loss of sight ensues.

These recurrences are determined more likely by some periodicity of the system, from five to eight attacks usually suffice in resulting blindness.

After the first attack there can usually be seen a bluish ring around the corneal margin, the eye, therefore, seeming smaller, and after several attacks it is smaller from atrophy.

Now this is a general picture, but that the attacks vary with different cases must be remembered.

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[1] Read before the meeting of the Illinois Veterinary Medical and Surgical Association.

The recurrence, however, is characteristic, and alike leads to cataract and blindness.

The prevention of this disease is the great object, and to accomplish this most desirable end we must go back to the starting-point, and have careful and discriminating breeding, feeding, stabling, etc.

Treatment. Some are benefited by colchicum in scruple doses, where rheumatic tendencies are evinced, or two-drachm doses of salicylate of soda twice daily. When convalescing, tonics of nux vomica, gr. x.; sulphate of soda, ℥j., daily.

THE RISE OF THE VETERINARY PROFESSION.

By T. A. Donaldson, V.S.,
MANCHESTER, CONN.

I AM not aware of any honorable profession that has had more barriers to its progress than the veterinary profession, especially in the United States.

Before veterinary colleges were instituted the blacksmith shop was the bearer of information for all the ills and treatment of our domestic animals. The farrier (iron worker) became the title of the original horse-doctor. The errors of the iron horse-doctors have been so indelibly grafted into the minds of the people that the horseshoer yet has a grip on a credulous public. The horseshoers still claims the heritage, and, like the silversmiths of old, yet cry out "Great is Diana." This error immigrated to this country. The customs of the average American prove that we are yet to a great extent a conservative people. The blacksmith shop to-day, even in the New England States, to the most conservative is the pool of Siloam to relieve the suffering of our dumb animals. There is not a graduate in the land who does not have this experience, and find some who prefer the traditional and infallible remedies promulgated by our great ancestors, when bleeding was resorted to for every ill, a salt herring run down the throat, split frogs for local applications to the legs; restoring an artificial cud to a cow was a rare virtue. In fact, all skill was a birth-gift from above. The farrier would bleed before he would diagnose. He used the fleam to get fame. He would bleed the horse to bleed the owner. How long will it take to remove this delusion? This conserva-

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[1] Offered at the American Veterinary Medical Association, New York City, September, 1899.

tive spirit is not limited to the illiterate, and to prove this I have only to call your attention to what Congress did with army bill. If one State in the Union granted veterinary legislation on the first application, I would like to know what State it is. And the States that have regulated veterinary medicine and surgery are far in the minority. The old State of Connecticut, although appealed to several times, never considered it right to protect the unwary public from imposition nor the graduate who came out on legitimate principles. What a conservative people we are to leave pretenders at liberty so long. How long will it be at this rate before the veterinary surgeons in the United States Army will rank above the position of a common soldier? What a vain boast we hear about the rapid strides of civilization, science, and art. If we are a progressive people, why does our Legislators not encourage us with better protection? And without proper protection the aspiring student has no impetus to go to college and attain proficiency at a large expense. If medical and surgical skill is a good thing for the safety of human life and the protection of live-stock, why, then, is it so repulsive to our wise legislators to give us protection and the encouragement we so justly deserve? Can you mention a country outside of the United States where non-professionals are at liberty to impose on a credulous public as they do here? A century ago veterinary colleges were in the days of their infancy. Since that time it has been a task, that is yet undone, to educate the people to science; and what is the prospect of the future? We first had the iron horse, now we have the trolley, and I understand that the Pope Manufacturing Company has an order for 6000 horseless carriages for this city. The trolley has removed no less than 1,000,000 horses from Uncle Sam's farm. Although these are not favorable to the veterinary profession, they are links in the march of progress and perfectly consistent with the laws of evolution. The department stores will, for they have already, adopted the horseless carriages for the delivery of their goods, and the great interest that is now taken in the improvement of roads will greatly favor their adoption. What inventive genius will not do in the near future is a risky statement to make.

In the face of all these substitutions, threatening the anihilation of the horse, there is enough left to sustain the profession for an untold period. New developments may create new uses for the horse, besides, the services of veterinary surgeons are rapidly increasing in demand for the bovine and ovine herds and flocks, and their services in canine practice is on the increase. The American continent, in my opinion, will be the greatest live-stock nation on the earth.

The wealthy class will never abandon the use of the horse. There is no means of conveyance that affords as much pleasure as to ride in a carriage drawn by a span of proud-looking horses. A ride on the train, on the trolley, on the horseless carriage is monotonous; but the best people in the country never get tired looking at the carriage-horse. The deer is called the forest beauty, but the horse is the beauty of the plain in all historic ages. His proud crest and his flowing mane are attractions of all who are gifted with a keen sense of the beautiful. The admiration of the horse has never depreciated since he was so perfectly described in the glowing language of Job : "His neck is clothed with thunder, he rejoiceth in his strength, and he paweth in the valley." Nothing but selfish economy will ever abandon the use of the horse, and if the American people will continue to use the horse because they are conservative I, for one, will be willing to pardon them.

The student who goes to college with any other purpose in view than to continue a student in the veterinary field, ever searching for knowledge, has sadly missed his calling. The colleges are deserving of much praise for untiring energy in preparing students to treat humanely the order of creation that cannot speak for themselves. And I say with all sincerity that if none were allowed to practise but those who can treat humanely and on scientific principles it would be a greater boon to humanity and live-stock than all the benefits derived from the humane societies. The man who pretends to have skill, if not in the posession of it is an impostor. I am in favor of any kind of liberty that is congenial to our welfare. The cruelties that are inflicted on dumb animals by non-professionals are horrible to relate, and none but the graduate is capable of knowing this ; and to escape the persecution that would follow it is not reported. I would be glad to see the day with a universal law that would allow none to practise but those who can practise on the principles of science.

Dr. George M. Waldrod, of Storn Lake, Iowa, writes of an outbreak of glanders in Buena Vista County, Iowa, in which State Veterinarian Gibson and his assistant, Dr. Hammond, already have destroyed some thirty-four horses. The disease seemed to be introduced through the movement of horses incidental to construction of a raiload through that territory.

ŒSTRUS OVIS.[1]

BY J. F. BUTTERFIELD, V.S.,
SOUTH MONTROSE, PA.

THE grub in the head of sheep is the larva of a gad-fly, œstrus ovis, which deposits the live embryo on the margin of the nostrils. From there it creeps up into the nasal sinuses and the sinuses of the head. It is often harmless, but sometimes causes much irritation, redness, and a white, muco-purulent discharge from the nostrils, with dulness and stupor, and even death from the congestion found near and in the brain.

I especially wish to call attention to the life-history of these parasites in the North. Most writers tell us the fly deposits the live worm during the summer months, and the mature larva makes its way from the head to the ground in spring, and there makes its change to the fly, to again lay another crop of embryo during the summer months. Heretofore it has been my experience to find the irritation caused by the grub to manifest itself during March and April.

The Pennsylvania State Live-stock Sanitary Board requested the writer to make an investigation into the cause of the loss of a number of sheep in the flock of Mr. R. S. Squires, of Lathrop, Susquehanna County. Mr. Squires had lost about fifty sheep in the past three years during the summer months from a flock of about 125. I visited Mr. Squires' farm about August 10, 1899, and found two that were presenting symptoms that others had shown which died. One was a two-year-old sheep, the other a four-months-old lamb. The symptoms present: Very thin in flesh, dull, sluggish, head drooped, and often held in a corner for hours, and a snotty nose. In the post-mortem examination the only alterations found were four or five of the œstrus larvæ in the sinuses of the head, with congestion of the coverings of the brain, especially the bony structure. Did not think we would find the grub of sufficient size to cause any trouble in the lamb, but upon an autopsy we found three larvæ in the sinuses of the nose that were three-fourths grown, and with the characteristic congestion in connection with the brain coverings. I find that one of the later investigators, Dr. Cooper Curtice, in *Animal Parasites of the Sheep*, tells us that in the vicinity of Baltimore, Md., he had found in January very small œstrus larvæ in the heads of sheep, and he thinks the fly may appear at any time the temperature is not too low. These cases lead me to the same opinion.

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[1] Read at the meeting of the Pennsylvania State Veterinary Medical Association, September, 1899.

As for treatment, my experience prompts me to think trephining and washing out with tepid water, after the larvæ have gained entrance to the sinuses of the head, is the only successful one, and that must be done before the sheep shows too much dulness or stupor. Where the larvæ are in the sinuses of the nose a solution of alum water injected into the nostrils seems to give them (the grub) most uneasiness. I have placed them in turpentine for half an hour, and they were as lively as ever. As for preventive treatment, smear the nose with a mixture of pine-tar and fish-oil, which can be done by salting from auger holes smeared around with the mixture. Also let the sheep in the cold dark basement of the barn during the heat of the day, tacking sticky fly-paper on the sides of the walls near the doors where the fly would naturally alight, thereby catching them before they deposit the little larvæ. This fly-paper can be very cheaply prepared by melting together two parts by weight of resin and one of castor-oil and smearing upon thick paper while warm.

AN UNCLASSIFIED DISEASE FOLLOWING PARTURITION IN COWS.[1]

By O. Verschelden, V.S.,
ST, MARY'S, KAN.

Time and again has my attention been called to a certain disease of cattle, especially during the fall and winter of 1897 and spring of 1898, when it prevailed as an enzoötic in my district. I have failed to see it mentioned in any works on cattle pathology at my disposal, and feel, therefore, justified in calling it "an unclassified disease," notwithstanding, perhaps, that many of you have met with it as well as myself. It is with that hope that I present this paper before you this evening. I will refrain from dealing with its probable etiology, leaving such to some of you who are, perhaps, better situated than I to study obscure diseases and go into orignal research. I will simply describe the symptoms as they present themselves to me, also my mode of treatment. I hope, however, to hear the experience of others and to have, by a thorough discussion, more light thrown on this, to me at least, obscure disease.

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[1] Read before the twenty-first regular meeting of the Missouri Valley Veterinary Medical Association.

It attacks cows of all ages and conditions in from three days to as many weeks after parturition. The first symptom usually noticed is a peculiar gait of the hind parts—the animal walks with the hind legs sideways, not unlike the trot of a dog. The general health at this stage is not much altered; perhaps a capricious appetite, with a slight fever, are all the symptoms; sometimes, especially if put under proper treatment at once, no graver symptoms develop, but such is not always the case; too frequently in a day or two more the symptoms are aggravated to an alarming extent. In so short a time the flesh seems to have melted from the body which was sleek and fat; the coat is rough and staring; the appetite is entirely gone, and with it rumination ceases; pulse is about 70 or 80, and temperature elevated two to three degrees; feces are hard and covered with mucus. What is peculiar in most cases is the surprising amount of milk secreted, considering the condition of the animal. In all cases which came under my observation the animal was able to get up without or with very little assistance; it would, however, have been an easy matter to push her over after she was up, so weak was she. The predominating symptoms are the incoördination of the hind parts and the rapid emaciation.

My mode of treatment consists in first administering a full dose of physic: Sulph. magnesia, 1 pound; gamboge, ℥j. No matter how weak the patient is this is followed by powders two or three times a day, consisting of sodium bicarb., gentian radix pulv., āā and strychnine sulph., grs. iij, combined or alternated in very bad cases with arsen. ac., grs. v. All of my cases so treated recovered in from ten days to two weeks, and once convalescence was established they gained quickly their former condition.

Now, what factor brings about these phenomena in the parturient cow? Has anyone seen it in the non-parturient animal, or in other females beside cows? These are questions which interest me very much, and I would like to hear you, gentlemen, on the subject.

Discussion.

Dr. Moore: Dr. Verschelden's paper is certainly a very interesting one, and he has described a series of cases which are certainly not commonly met with, though possibly I may have seen some such. The symptoms are somewhat similar to those found in cases which I have met, and which I attributed to septic intoxication; but in the cases described the lesions were developed too long after parturition to be ascribed to septic infection.

As you are aware, there often remains after parturition small portions of placenta in which putrefactive changes occur, producing a series of symptoms similar to those described, such as elevation of temperature, staggering gait, general weakness, and rapid emaciation. The treatment employed in cases described in the paper would be quite likely to be beneficial in cases of septic intoxication.

Dr. Bennett: I do not remember to have seen any cases like those described in the paper, and I should be pleased to hear what Dr. Verschelden thinks was the cause in his cases.

Dr. Verschelden: I have not been able to make a careful and satisfactory study of it. I have considered it a species of nervous disease, possibly resulting from stomach troubles. It does not seem possible that it was due to septic infection, as in many cases the deliveries were very easy and the membranes came away promptly. Some cases occurred as long as three weeks after very easy delivery, and one thing peculiar about it, there was a very slight diminution of the milk-supply; there were no vaginal discharges and no straining. It is peculiar that these cases were all seen during the fall of 1897 and spring of 1898. Fully 50 per cent. of the cows in St. Mary's, where I practice, suffered from the malady. I did not see any cases in the country. My treatment, as you will note, was nerve stimulant and tonic.

Dr. Wright: Dr. Verschelden asks if any of us has seen similar cases. I will say that I saw something similar in a bitch I owned. I noted her one morning having a staggering gait and disinclination to move about. This condition was ascribed by me to fright, as the dog-catchers had endeavored to secure her. She rapidly emaciated thereafter, being reduced to skin and bones. She was finally given a good purgative, which operated promptly, and after which she made rapid recovery.

Dr. Milnes: I understand from the paper that the essayist thought there was some relation between the case of crotalism of which he read and these cases described, and I would like to know if that is his idea.

Dr. Verschelden: Yes.

Dr. Milnes: As I understand crotalism, it is a disease of the horse only, produced by the poisonous weed crotalia sagittalis in the food.

Dr. Verschelden: I was led to believe from the symptoms that there was some poisonous element in the food of these cattle.

Dr. Moore: I can readily see how the train of symptoms given in these cases would indicate that there was a toxic element in the food, but it seems from the paper that only parturient cows were affected, whereas other animals are likely also to be influenced by poisonous food.

Dr. Milnes: Perhaps it is possible that females in the parturient state are more susceptible than males.

Dr. Moore: That may be the case, but we must not forget that in these animals symptoms developed two or three weeks after parturition.

Dr. Milnes: The symptoms are somewhat similar to those in horses suffering from crotalism, in which there are staggering gait, enfeebled eyesight, emaciation, and loss of appetite, which condition extends over a period from three months to eighteen months. I have known cases to die at the end of three months. Crotalaria sagittalis grows in the Missouri River bottoms, in western Iowa and is acquired by the animals both from feeding in the pastures and from hay.

Dr. Verschelden: All of these cases that I saw were in the town of St. Mary's, being dairy cows. No cases were seen in the country about, and the home cows were fed on slops and refuse of the city mills.

Dr. Ernst: I will state that in Leavenworth some of the people feed mill stuff, consisting of the imperfect kernels of corn, and the chaff, the cob, etc., to the horses and cattle, and it produced a condition called stomach staggers in the horses. I never saw anything of the kind in cattle. It was so well understood that this stomach staggers was produced by this mill stuff that the people no longer feed it to horses, but still use it for feed for the cattle.

STATE CONTROL OF GLANDERS IN MINNESOTA.[1]

By M. H. Reynolds, D.V.M.,

ST. ANTHONY PARK, MINN.

(Concluded from page 742, December number, 1899.)

Our glanders placard when signed and posted constitutes in most cases the official written order of quarantine. It reads as follows:

Glanders Exists upon these Premises.

All persons are forbidden to remove from these premises, without written permission from the State or Local Board of Health, any animal or thing whereby glanders may be conveyed.

No quarantined horse or mule may under any circumstances be placed in any other stable; or tied to any public hitching-post or rack; or be watered in or from any trough or vessel to which other horses or mules have access.

No horse or mule, except those hereby quarantined, may under any circumstances be allowed in these stables or in any stables that have been quarantined on these premises.

The owner or keeper of these premises will be held responsible for the unauthorized removal of this card.

By order of

——— ———
Health Officer.

Dated ————, 18—.

Chapter 233, Laws of 1897.

Section 1. Authority is hereby given to the State Board of Health and to the several local boards of health of the towns, villages, and cities of this State to take all steps they may severally deem necessary to control, suppress and eradicate any and all contagious and infectious diseases among any of the domestic animals in this State, and to that end said boards are hereby severally empowered, within their respective jurisdictions, to quarantine any domestic animal which is infected with any such disease or which has been exposed to infection therefrom.

Section 9. Any person violating any provision of this act, or any rule or regulation made by the State Board of Health, or by any Local Board of Health, or any order made by any such board under the authority hereof, shall be guilty of a misdemeanor and be punished by a fine of not less than twenty-five (25) or more than one hundred (100) dollars, or by imprisonment for not less thirty (30) or more than ninety (90) days.

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[1] Read before the American Veterinary Medical Association, New York, September, 1899.

The following is our "Notice to Destroy."

(This part to be retained by the local board.)

Always fill out as early as possible, for each outbreak of glanders, one of the blanks for reporting infectious diseases among animals and return to Dr. M. H. Reynolds, St. Anthony Park, Minn.

Notice to Destroy Animals Having Glanders–farcy.

189 Given by local Board of . . . Notice served by . . . Owner's or keeper's name and address. . . . Name and description of animal.

(For the owner.)

189 . . . To . . . You are hereby notified that there is now on your premises the animal (give name, age, color, etc.) . . . suffering from glanders-farcy, which disease is contagious to man and animals. You are hereby ordered to have said animal killed within twenty-four hours after the service of this notice and to have the stables and things occupied and used by said animal disinfected in accordance with the following regulations:

Regulations for Dealing with Glanders-farcy.

By authority of law, Chapter 233, approved March 12, 1897.

The slaughter of condemned animals, their burial and disinfection of stables, etc., as herein prescribed, must be done under the supervision of the health officer or chairman of local board.

When any local board of health has satisfactory evidence that any horses or mules are affected with glanders-farcy, such horses or mules must be killed within twenty-four hours ot the service of this notice.

Each carcass must be covered with quicklime before filling in any earth, and each carcass, after slashing the hide, shall be buried so that the entire body shall be at least four feet below the surface of the ground.

No sales to rendering establishments or other disposition of the carcass than as above provided shall be permitted.

Parties who attend the killing and burial should be warned that the disease may be readily contracted by them and the disease is very fatal to human beings. Such infection may occur through the mucous membranes of the eyes, nose, or mouth, or through any cut or abrasion of the skin.

After disposing of the carcass, the next step is cleaning and disinfection of the stable and articles used by the condemned animals.

Remove and burn all litter, including hay in the mangers, and bedding.

Scrape the floor clean as possible, and burn the manure and dirt that may be scraped from the floor.

Close the stable tightly as possible, filling up the holes and cracks; place in the stable from one to five washtubs of boiling water, the number to be used depending on the size of stable. On stones or bricks in each tub of water place an iron kettle or old pan; then burn in each pan or kettle three pounds of ordinary sulphur that has been saturated with alcohol. All persons should go out as soon as possible and shut the door tightly, the stable to remain tightly closed for ten or twelve hours; then open up and ventilate thoroughly for twenty-four hours.

Everything that cannot be boiled should be left hanging in the stable or burned; and when the fumigation is finished, such articles should be hung out in the open air and exposed to sunshine for several days.

The interior of the stable should be whitewashed with fresh whitewash, containing one-fourth of a pound of chloride of lime per gallon, and lime should be scattered freely over the floors.

The interior of the mangers and feed-boxes must be thoroughly disinfected by boiling water or by corrosive sublimate solution, fifteen grains to the pint of water.

No horses or mules may be allowed in such stables until after at least a week of continuous exposure to free ventilation and sunshine following the above prescribed disinfection.

Temporary structures, like straw sheds, etc., should be burned, and the same is true of blankets and halters that have been used by diseased animals.

By order of the local board of health. ———— ————

Health Officer or Chairman.

CHAPTER 238—S. F. NO. 322.

An Act to Prevent the Spread of Contagious and Infectious Diseases Among Domestic Animals in This State.

Be it enacted by the Legislature of the State of Minnesota:

SECTION 1. Authority is hereby given to the State Board of Health and to the several local boards of health of the towns, villages, and cities of this State, to take all steps they may severally deem necessary to control, suppress, and eradicate any and all contagious and infectious diseases among any of the domestic animals in this State, and to that end said boards are hereby severally empowered, within their respective jurisdictions, to quarantine any domestic animal which is infected with any such disease or which has been exposed to infection therefrom; to kill any animal so infected, and whenever deemed necessary by the State Board of Health to kill any animal which has been exposed to the infection of any such disease.

SEC. 6. When any animal is quarantined upon the premises of its owner or keeper, the expense thereof shall be borne by its owner or keeper. Whenever any animal is quarantined when being shipped into the State, the expense thereof shall be borne by its owner or keeper. Whenever the owner or keeper of any domestic animal is liable for any expenses incurred, under this act, by any board of health in connection therewith, such board may have a lien on such animal for such expense, and may also maintain an action against such owner or keeper therefor.

SEC. 7. It is hereby made the duty of the several local boards of health in this State to carry out and enforce all orders and directions of the State Board of Health to them directed, and the State Board of Health may require any two or more local boards to act together for the purpose of enforcing any of the provisions of this act.

SEC. 9. Any person violating any provision of this act or any rule or regulation made by the State Board of Health, or by any local board of health, or any order made by any such board under the authority hereof, shall be guilty of a misdemeanor and be punished by a fine of not less than twenty-five (25) or more than one hundred (100) dollars,. or by imprisonment for not less than thirty (30) or more than ninety (90) days. Any member of any local board of health who shall neglect or refuse to carry into effect the provisions of this act, or who shall neglect or refuse to carry out any directions of the State Board of Health, or who shall neglect or refuse to enforce any rule or regulation made by the State Board of Health, or by any local board of health, under the authority hereof shall be guilty of a misdemeanor and be punished by a fine of not less than twenty-five (25) and not more than one hundred (100) dollars; and each and every day's neglect or refusal to perform any duty imposed upon him by this act shall constitute a separate and independent misdemeanor. Complaints for violating the provisions of this act, or for violating any rule or regulation made by any board of health under its authority, may be made by any member or authorized agent of any such board or by any citizen of this State.

This circular was written two years ago, and will be revised in the next issue.

We also have a circular, "Notice to Isolate." This is served only in rare cases.

Results: It is perhaps not unfair that I should submit some of our records showing the results of these methods. Your attention is called to the marked improvement made in one and two years in the following counties selected as the ones in which glanders-farcy was most common during 1897. Those containing the large cities are omitted.

	1897.	1898.	1899.
Polk	32	16	5
Carver	30	2	0
Chippewa	22	4	0
McLeod	11	0	0
Winona	8	0	1
Kandiyohi	8	0	3
Redwood	5	0	0
Faribault	7	2	1

Please bear in mind that our work is done without the substantial aid which comes from partial or complete compensation. These figures must show plainly to any one familiar with the peculiarities of this disease, and especially to those familiar with public works of this kind, that the work of 1897 was successful.

General Problems. The question, what constitutes a mallein reaction, certainly deserves consideration, inasmuch as there is difference of opinion among practitioners, particularly as to the basis for comparison of temperatures. A gradual rise of two degrees or more above the normal range within twenty-four hours, and a well-marked, painful swelling at the site of injection constitute a reaction upon which it is safe to diagnose glanders, providing other possible causes of these disturbances are borne in mind. The temperature reaction is entitled to much greater consideration than the local swelling. Horses affected with glanders-farcy occasionally give marked temperature reactions with very little local disturbance. A record of this kind should constitute a mallein reaction when occurring in a stable where an undoubted case of glanders-farcy had recently appeared. If there had been no such case of glanders in the stable, and the horses showed no clinical symptoms, I should hesitate before making positive diagnosis. Under ordinary circumstances we regard such an animal as suspicious, and the owner is forbidden to dispose of it for removal from the place for a reasonable time.

What Horses should be Killed? All that show plain symptoms of glanders-farcy, regardless of mallein reaction, and all horses that have given clear reactions and show any external symptoms of the disease, including thick wind and chronic cough.

What should be done with the horse that reacts but shows no other symptom of the disease? It is not necessary that all reacting horses should be immediately destroyed, but I do insist that we should know where the mild and latent cases of glanders-farcy are. We should have on file records concerning such cases. These horses should at least be kept under observation and should never be released until they have failed to react on proper mallein-test. I believe the Minnesota rule upon this point is a wise one. It is in effect that such horses may either be destroyed at once, or continued in quarantine for any period not shorter than thirty days nor longer than one year from date of test. Such horses cannot be released from quarantine until they have failed to react under mallein-test. If such horses develop clinical symptoms during quarantine they must be destroyed without delay. Beyond these points each case is decided upon its own merits. In many cases the full quarantine period is permitted and the owner is authorized to use one or more teams upon the road, according to circumstances. In the country farmers are usually authorized to use any of their quarantined horses in farm work, but they are isolated from healthy horses so far as stable, water, food, and work are concerned. Please bear in mind that horses which show clinical symptoms are not quarantined.

Protection for the honest owner offers another problem. Partial or full compensation cannot alone solve it. Conditions of quarantine may sometimes be modified so as to lighten his burden a great deal. When this is done we still have left for consideration the loss of property. Generous compensation is undoubtedly the theoretical solution, but sanitary authorities in comparatively few States are able to do this. It is sometimes difficult to protect the honest owner and the State. Compensation should be based upon appraisal, and appraisal should be limited. The State should not be compelled to pay any unreasonable prices for diseased animals. Neighbors are apt to be generous when the State is to pay the bill. Appraisal should not be permitted unless the condemned animal has been owned in the State at least six months and in possession of the present owner for at least sixty days. Neither should compensation be permitted if the animal was obviously sick at the time of purchase.

As the Minnesota law dealing with infectious diseases of animals now stands, we are not authorized to reimburse owners for animals that may be destroyed on account of infectious diseases. Our law provides that after an animal has been condemned for destruction the owner shall have twenty-four hours in which to make formal protest against the killing. Post-mortem is then conducted by three experts, and if these experts find no evidence of any infectious disease, then the animal may be appraised. The State pays four-fifths and the local board one-fifth. I do not consider this an ideal method. It is the best we can do at present. But we make a special effort to protect the owner by usually killing only those horses which show clinical symptoms.

I have been trying to devise some plan of optional compensation, so that those who really deserve help may have it without asking the State to pay for all animals that may be condemned. But it is difficult to discriminate in public work. The most feasible plan that has so far suggested itself is to ask for a law which shall provide that whenever the township supervisors or the city authorities first offer to pay one-third or one-half of the appraised sum then the State Board of Health shall pay the remainder. In this way leaving compensation optional with the local authorities who are familiar with the circumstances of the case, and at the same time testing their sincerity by asking them to help pay the bill.

How to secure prompt reports concerning the appearance of glanders-farcy is quite a problem. The Minnesota solutions is given in section 2 of the law, which reads as follows:

Sec. 3. Any person who knows of, or has reason to suspect, the existence of any contagious or infectious diseases in any domestic animal shall forthwith give notice thereof to the local board of health of the town, village, or city where such animal is kept. Within twenty-four (24) hours after any local board shall receive notice that any domestic animal is infected with any such disease, or has been exposed thereto, it shall give notice thereof in writing to the State Board of Health.

Disobedience is punishable by fine or imprisonment.

Practical disinfection offers another problem, but not so difficult. Löffler and others have demonstrated that the glanders bacillus is very sensitive to unfavorable conditions, that these germs are destroyed by ten-minutes' exposure to a temperature of 56° C., five minutes in 3 per cent. carbolic acid, three minutes in 1 : 5000 bichloride, that they fail to grow after a short time, even under most favorable conditions. These germs are very susceptible to light and probably to low temperatures. So that if we are able to keep a stable vacant for a comparatively short time, and especially if it be well lighted and ventilated, nature will do the disinfecting. Or we can whitewash, using a spray pump for distributing the whitewash. This can be followed by two or three men using brushes on the woodwork. For whitewashing walls, roofs, partitions, etc., the spray pump is efficient and very rapid. It may be that we will soon be able to use formaldehyde in a practical way. Capable experimenters who have worked with this agent have arrived at such different results that we naturally feel inclined to wait.

The Large City. Glanders-farcy in large cities offers a difficult problem. The theoretical solution is not at all difficult, but the practical solution is a somewhat different matter. All who have had experience will agree with me that it is much easier to do thorough and effective work in the country and in small cities. Rules may be made which are wise and practical for the country and correct in theory for the city, but which are extremely difficult of enforcement in the latter places; for instance, testing all horses that have been exposed in the stable. This may mean the testing of 50 or 100 horses, or possibly 250 horses, with a startling percentage of reactions. In the country we may allow the owner to use his team until after harvest, or use the team upon the road, or even to go to town under certain conditions. The risk of spreading the disease in this way is insignificant, but this is not true in the city. Public watering places are scattered everywhere. Places where horses are tied are abundant, and while the diseased horse may not be tied to any of these places, he is liable to be left standing where he can conveniently rub his nose. A diseased horse in the city exposes several times as many horses as a similar case in the country.

In the city we have the large livery-stable to deal with. An outbreak of glanders-farcy in a large livery-stable is a difficult thing to manage, if one tries to bear in mind the two fundamental propositions which I mentioned at the beginning of this paper. If we do not test all horses in the stable we are sure to miss some which are affected and which may develop into infectious cases within a short time. If we do test all horses in the stable and a number of horses react without showing symptoms of the disease then the difficult problem arises immediately: What shall we do with them? We cannot quarantine them without quarantining the stable. If we quarantine the stable and post the glanders placard it may mean ruin for the owner's business. We cannot trust hack- and cab-drivers to refrain from watering their horses at any public watering-place, from tying at or allowing them to stand near public hitching-places.

The public watering-place is another city problem, but not a difficult one. Small tanks and water rapidly changed is the evident solution.

These are but a few of the many problems which the large cities offer for solution. I could not discuss these problems fully in a paper of reasonable length, but would very much like to hear them discussed at this meeting. Some have been solved. Some are in the progress of solution.

The Christmas examinations of the Ontario Veterinary College, Toronto, Canada, were held in the Veterinary College, on Thursday, December 21, 1899.

The Board of Examiners, which is composed of prominent veterinary surgeons in the active practice of their profession in various parts of the country, after subjecting the candidates to a rigorous examination awarded diplomas to the following gentlemen: Alva G. King, Moosup, Conn.; Arthur N. Norwood, Naugatuck, Conn.; Millage Philips, Wallaceburg, Ont.; Wm. S. Shultze, Marengo, Iowa; David J. Smith, Barre, Vermont.

Dr. Charles F. Dawson, of the Bureau of Animal Industry, has resigned his chair as lecturer on pathology in the United States College of Veterinary Surgeons, Washington, D. C.

DEPARTMENT OF SURGERY.

By W. E. A. Wyman, M.D.V., V.S.,
MILWAUKEE, WIS.
L. A. Merillat, V.S.,
M'KILLIP VETERINARY COLLEGE, CHICAGO.
J. A. Sloan, B.Sc., M.D.V.,
SAN FRANCISCO, CAL.
Dr. Robert Jay, M.D.V.,
WEST LIBERTY, IA.

The Clinical Diagnosis of Nasal Discharges.

The Department of Surgery of the July and August numbers of the Journal devoted itself to a general survey of nasal discharge and nasal exhalation; the next clinical issue in order shall be the various diseases productive of nasal exhalations and exudates, such as fracture of the nasal, frontal maxillary bones, necrosis, and other diseases of the septum nasi, neoformations, epistaxis, coryza, and diseases of the sinuses and guttural pouches. An endeavor shall be made to deal with the various subjects as practically as possible, viz., from the clinical stand-point—that is, make the history of the case, inspection, palpation, etc., the basis of the discussion.

Since the first two articles on this subject have been received so kindly, it is hoped that the following ones will meet with a similar reception. Before entering upon the diseases themselves a *résumé* of clinical methods of examination may be of some interest.

Examination of the Nose and Nasal Cavity. Inspection of the nostrils reveals various states, infiltrations, and swellings of the skin about the nostrils, as in farcy, morbus maculosus, etc.; of tumors, carcinomata, fibromata, and papillomata are more frequently met; osseous swellings, as in rhachitis, osteoporosis; congenital and traumatic deformities; ulcers and nodules upon the nasal skin and mucous membrane; the latter also exhibits the pustules of the contagious form of stomatitis. The immediate neighborhood of the nostrils may be covered with crusts, resulting from exudations. Thus the amber-colored or dirty yellow-reddish crusts follow the rusty discharge of contagious pneumonia. Any hemorrhagic exudate is liable to give rise to brownish crusts, while the discharge of the streptococcus distemper, and glanders especially, may result in deposits of yellowish, dirty gray or greenish color. Finally, in discharges of long standing, maceration and destruction of the pigmentary layer occurs, and a fleshy colored streak indicates chronicity and the insulted locality.

The internal inspection of the nasal cavity, as a rule, is done simply with the thumb and index finger, occasionally with a speculum, and, when circumstances warrant it, with the Polansky-Schindelka panelectroscope or rhino-laryngoscope. These last two instruments are practically unknown to the majority of veterinarians, as the price of about $75 is sufficient to create consternation, the entire instrument supply of most men being easily covered by the above sum. At the same time it should be in every college, and the practitioner responsible to a large clientage cannot, except in rare instances, get along without it, as it is the only safe means by which a doubtful diagnosis can be rendered positive. Exploration of the nasal cavity may yield some of the following changes of more or less diagnostic importance.

The most important problem in the art of clinical diagnosis lies not so much in seeing a certain thing, but to interpret correctly that which is detectable. The beginner, therefore, is apt to make diagnostic errors. In this instance the color of the nasal mucous membrane is of interest. An examination with ordinary daylight gives the safest results, as the hyperæmic or anæmic states of the membrane are readily discovered; but even here it must be remembered that the more superior parts of the mucous membrane of the septum nasi and nasal cavity naturally simulate congestion on account of the increased blood-supply of the erectile tissue of that locality, thus appearing darker in color without actually being hyperæmic. In case the speculum is used and artificial light thrown upon the mucous membrane, the healthy reddish color is supplanted by a dark and even yellow-reddish color, while the region of the erectile tissue looks somewhat bluish-red without being congested. The nasal opening of the lachrymal duct, as well as the little indentations representing the openings of mucous glands in the more inferior portion of the mucous membrane of the septum nasi, must not be mistaken for diseased states—ulcerations, for instance. Exudates, the result of a simple inflammatory process involving the nasal mucous membrane, should not be mistaken for pustules or ulcers, and in all doubtful cases may be removed gently with the finger to demonstrate the true origin. Dust covering the mucous membrane, thus hiding the actual state of affairs, may be wiped away with the finger.

In all cases of a suspicious nature the practitioner should conduct the examination with due care, to prevent the possibility of infecting himself.

COLOR OF THE NASAL MUCOUS MEMBRANE. When studying the color of the membrane from a clinical point of view it is well to compare it with the color of some other mucous membrane; for instance, the conjunctiva. The importance of this manifests itself strikingly in the chronic nasal catarrh. Here the nasal mucous membrane's excessive pallor is quite out of proportion to the color exhibited by the other mucous membranes; in fact, the color of the nasal mucous membrane in the chronic nasal catarrh may be termed a leaden hue.

(To be continued.)

REPORTS OF CASES.

SOME EVERYDAY CASES.[1]

BY WALKER S. PHILLIPS, V.S.,
READING, PA.

VETERINARY science is progressing rapidly, and I am positive that the Pennsylvania Veterinary Medical Association has done much toward elevating and protecting its members.

When I recall the fall of 1860, the time I began to practise, remembering veterinary science as it was then, in its infancy, it is a great pleasure and satisfaction to me to see to-day how our profession has advanced, and how the farmers especially pay greater attention to their stock, have themselves much better judgment, and look for a veterinarian who can treat their stock scientifically. As I was perusing one of our valuable journals it occurred to me that the report of different cases which came under my observation might prove of some interest:

July 8th. The subject, an eight-year-old dapple-gray gelding, was observed two years ago to have a small tumor, situated on the lower part of the left flank, which had greatly increased in size. Upon examination I found it to be a melanotic tumor; the tumor had a base of about four inches. Dissecting it out and bringing the parts together with sutures could not be done. I removed with the knife, and had some trouble in checking the hemorrhage. The wound healed nicely without any sloughing of the parts, which is often the case with melanotic tumors.

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[1] Read before the meeting of the Pennsylvania State Veterinary Medical Association, September, 1899.

A gray horse, somewhat aged, was used as a saddle-horse in this city for seven years by one family. Showed first symptoms as follows: After being brought in weakness across the loins; also on passing feces the passage would sometimes be obstructed and remain in the rectum. Upon examination per rectum I discovered a large, hard tumor on the right side of the rectum, in a straight line. Placed the hobbles upon the animal and cast him. Made an incision five inches in length on the right side of the urethra, and after further dissection removed a large melanotic tumor. The wound healed after some trouble with the usual discharge in such cases, considering the position of the wound. The animal was placed at work three weeks after the operation, and driven through a shower, after which symptoms of tetanus presented themselves, and as the animal was well up in years his recovery was not expected. Great interest was taken in the horse, as he was a faithful animal, and all efforts were made to save him, and he fully recovered.

On September 3d I was called to the country to see several calves about six weeks old. The owner stated that they breathed short and seemed to have swollen throats. Upon arriving at the stable found several animals affected with croup. Symptoms: Throat somewhat enlarged, breathing with difficulty, and a hoarse sound on coughing. Found the abdomen distended with gas in both cases, also high fever; no discharge from the bowels. Gave then to each animal two ounces of linseed-oil, applied a liniment to the throats, then also made a preparation composed of chlorate potash, powdered alum, spirits of nitre, mixed in honey, to be given three times daily. Before leaving the stable gave an injection to each animal. The owner, who has a milk route in this city, reported cases improved, and I cannot refrain from saying that in dangerous throat affections I find the above treatment has served me well in many a bad case, treating other symptoms as they present themselves, as indicated.

During the past two weeks have treated eight cases of spasmodic and flatulent colic, caused by feeding new oats. Medicines which I find most effective and give me satisfactory results are as follows: Chloric ether, tincture of opium, menthæ piperata; in flatulency, add bicarbonate soda and powdered zingiber.

Was called to see a bay horse, August 20th, eight years old, which had been coughing and breathed short. Was given a purgative. On arriving at the stable the proprietor said: "A queer case, a queer case." My diagnosis found the animal laboring with pleuro-pneumonia. The muscles in the lumbar region were congested and greatly swollen; also the muscles in the humeral region. Asked, was this horse driven? No. I was somewhat puzzled. Gave medicine for pleuro-pneumonia and applied a mustard sinapism to the chest. Still all symptoms of azoturia present. I again asked, was this horse out? The answer was, the owner had intended going out, but only got several squares and had to return to the stable. Second day, improvement in chest affection, but symptoms of azoturia worse. Partial loss of power of whole body. The animal dropped and laid quiet for an hour, then got up. Third day, same action. Then, in about a week or ten days, seemed well, and was driven as usual. The treatment in this case was a little difficult. Gave medicines first for the chest affection, then next dose I ventured on tonics, nux vomica, changing off as I saw fit.

August 14th, azoturia in a sorrel horse, six years old. Brought to my office with profuse perspiration, abdomen tympanitic, with considerable pain and pawing. Thought by the driver to be colic. Was affected in a short time with loss of power in the hind limbs; managed to get animal to stable eight squares away. Swelling of the muscles as usual. Horse, after standing five days, had recovered and was driven for two weeks, then was again attacked with the same disease. Upon looking into the case I found the animal had been fed more than the digestive organs could bear, and on resting a few days would be affected as above. The horse has been fed lighter since, and seems to be getting along nicely.

When I find cases as above in pain and tympanitis I treat those symptoms first. Apply stimulating liniments to the congested muscles after the pain has ceased, which usually lasts one hour, then I give my tonics and nerve medicine, very seldom purgatives. Have treated four cases in this city in the last four weeks.

CASE REPORTS.

By G. E. Nesom, D.V.M.,
CLEMSON COLLEGE, S. C.

Case I.—An iron-gray mule, eight years old, weighed about 800 pounds. Brought to the College Veterinary Hospital by the owner, who had traded for the mule two years before. At that time he noticed a small open ulcer about the centre of the right anterior tibial region. This soon healed, but gradually enlarged for several months, having assumed the form of a base-ball under the skin. On examination the tumor proved quite hard, well defined, closely attached to the skin, and only slightly attached to the subjacent tissues. The mule was cast and secured with Conkey harness, hair clipped, and skin disinfected. An elliptical incision was made, and the remaining skin dissected back with some difficulty. This done the tumor was easily removed. The wound was washed with creolin solution, packed with boric acid, silk stitched, and the mule returned home, a distance of seven miles. The wound soon healed entirely, with no scar. On examination of the mass removed it showed to be the size of a small base-ball, with the flat side nearest the limb. It was composed almost entirely of bony matter, irregularly formed, and having a cavity much like a small brain cavity, filled with serum and globules of fatty matter. Specimen preserved.

CASE II.—A small "clay-bank" mule, seven years old, weighed about 650 pounds, used for light farm work just at the foot of Blue Ridge Mountains. Brought to the college free clinic to have an enlargement on the side of the jaw "cut off."

The mass appeared just above the ring in the snaffle-bit on the right side; was some four inches long, tapering to the ends, and appeared one and a half inches in diameter. By placing the finger on Sterno's duct just above the margin of the jaw, and then moving the tumor, traction on the duct was easily detected. The mule was placed on the operating-table, part prepared, and a linear incision made straight down into the mass. After passing through the skin and a rather heavy layer of fibrous tissue the knife came in contact with a hard stone. By enlarging the opening to about one and a half inches a well formed calculus was removed. It was kidney-shaped, though more conical at the ends and measured three inches in length by one and three-eighth inches in diameter at the largest part. The dilated duct was stitched through with catgut so as to bring the mucous surfaces together, then the edges pared and stitched with silk. The skin, which had been dissected back, was closed with silk after being packed with boric acid. Do not know result of wounds.

Dr. Iago, of Athens, Ga., reports a traumatic injury of the lower end of the tibia, of more than a year's standing, caused by a kick; for three months previous had continually grown more lame. Surgical means for removal of the bony enlargement were adopted, and, though followed by a partially opened joint, in three months the parts had healed, the animal was placed at work, and there proved to be no stiffness of the hock articulations.

EDITORIALS.

THE VETERINARY CORPS, U. S. ARMY.

"The fearful power of inertia in Washington is worse than any active opposition on any subject. 'Hang on' is the dog that wins."—WM. E. ANNIN.

Such a self-evident fact, as that:

The United States has nearly three million dollars invested in its army horses and mules each year, and its soldiers consume an enormous quantity of animal food annually; and that

The United States is the only civilized government in the world whose army has not a veterinary corps or any proper provision for the care of the health of its animals and for the inspection of the animal food which its soldiers consume; and that

Numerous States have, in the last two decades, established veterinary schools, educating veterinarians to be the scientific peers of other medical men; and that

The work of the Bureau of Animal Industry of the Department of Agriculture, and of the several State Veterinarians, and of the various Agricultural Schools and Experiment Stations, has shown that there are numbers of veterinarians now in this country who, by education, experience, and ability are worthy officials of the government;

Does appeal strongly to everyone who will take the time to consider the subject; but it must be remembered that our legislators in Washington have innumerable important subjects to consider and act upon for the welfare of the government, and that they must choose for immediate action those which have a reason and unquestioned merit.

Fortunately for us, the establishment of a Veterinary Corps in the United States Army equal to that which has been found so valuable and necessary in the armies of all other countries now finds its proper time for immediate legislation.

The very fact that there are certain other needs in the army involving far greater thought and consideration and necessitating the question of vast outlays of money does not in any degree militate against the immediate establishment of an organized Veterinary Service. On the contrary, the service which qualified, competent veterinarians will render to the army will make the more important changes more easily established.

The Spanish War developed the fact that our military condition was inadequate to the conditions of to-day. In thirty-five years, since the interstate war, the population of the country, its commerce, and its standing among other countries had doubled, trebled, quadrupled, while its army had remained at the twenty-five thousand which had been deemed sufficient after the war with Mexico. Now the conditions are vastly different. Our coast line has increased from the Atlantic, Gulf, and Lake borders by the addition of the Pacific States, Alaska, and, last year, the ocean commerce of the Indies, East and West. A half-century ago we imported essentials of life from other countries. To-day we are lowering the trade of England and see before us the competition of Germany and Russia for the supremacy of the civilization of the world.

This means a merchant marine to carry our surplus manufactures and food products to every other country on the earth, a navy to protect our commerce, and a reasonable army for our coast defence and for preserving peace and insuring protection to peaceful citizens where the Stars and Stripes float, and have promised it.

Modern inventions and their appliance to the arts of war have greatly altered the conditions of a half-century ago.

The artillery has grown vastly in importance. Heavy guns, costing each in construction from a few thousand to many thousands of dollars, are needed at each of our ports and in the mobile field artillery, which makes the protection of an army to-day.

Perhaps the greatest need of the army to-day is an Artillery Corps; the expensive guns of our coast defence are rusting and lying idle, while three thousand of our artillerymen are serving as infantry to meet immediate necessities. But, for the efficiency of our field artillery, an ORGANIZED VETERINARY CORPS is needed to insure the purchase of sound horses, to see that they are properly fed and shod, and to care for their health and consequent utility.

The experience of our Indian wars for a quarter of a century and the conditions which face us to-day in Puerto Rico, Cuba, and the Philippines are not those of war, but of the results of war. Public roads must be opened and protected to furnish peaceful travel to the industrious farmer and merchant who develop real civilization. For this purpose armies are not needed, but squads of cavalry which can rapidly patrol the developing country and guard its safety. Over mountain trails pack trains are needed for all transportation, until steam and electricity follow the final civilization.

Ten thousand of our increased army will have to be added to our present ten regiments of cavalry, while the pack trains and quartermasters' trains of army wagons carry supplies to all.

For the efficiency of these, an ORGANIZED VETERINARY SERVICE is a necessity.

While the reorganization of the General Staff in the purely Military Departments of the army is of most urgent necessity, the work of the Quartermaster's Department and of the Commissary Department in the United States army is radically deficient in the absence of an ORGANIZED VETERINARY SERVICE.

The hygienic conditions of animals on transports, the inspection of forage, and the altered rations for animals necessitated by tropical surroundings, the inspection of cattle for food, and of the meat ration for the soldier can only be properly made by competent veterinarians controlled by an organized service.

After all the criticism of the beef furnished to the United States soldiers in the Spanish War, the army has not to-day a qualified meat inspection service. In every other civilized country in the world an ORGANIZED CORPS OF VETERINARIANS inspect the live cattle and the slaughtered meat which the soldiers eat.

The unquestionable standard of the examinations of the Medical Department of the United States Army shows how efficiently a group of talented professional men can be collected who, for money compensation far below that earned in civil life, will devote their best energies to honest labor for the good of their country. A properly organized Veterinary Corps, according rank and recognition, will bring into the service the best element of young, energetic men, whose ambition will be to show that they deserve the place so tardily accorded them.

Under the present system a qualified veterinarian may enter the service with hope, but will not remain in it.

Years ago General Sheridan arranged for the establishment of a Veterinary Service, which his death delayed. To-day General Miles recommends it. Generals Merritt, Brooke, Wilson, Breckenridge, Randolph, and Charles King, General Ludington, the Quartermaster-General, Colonels Lee, Wheeler, Pullman, and other officers of the Quartermaster's Department, and Colonel Hein, Commandant of Cadets at West Point, all have expressed themselves in favor of the establishment of a Veterinary Corps in the army.

The majority of the United States Senators and of the members of Congress have expressed themselves as favorable to the establishment of a Veterinary Corps in the army, and have promised their support to establish it. The President of the United States has expressed himself favorably to it, and yet it will require much labor still to obtain it.

To understand this one must understand what Congress is. Congress is a body of small legislatures. The vast mass of affairs involved in the care of the government are subdivided, and the consideration of them is assigned to committees. On every subject, except those of political party importance or unquestioned merit, the action in regard to them is left to a committee to decide, and the vote in the Senate and the House of Representatives is a perfunctory measure.

Fortunately for us, the ESTABLISHMENT OF A VETERINARY CORPS IN THE ARMY IS ONE OF UNQUESTIONED MERIT, and appeals to the common sense and first instinct of economy in every legislator who has taken the time to consider it. All of the higher authorities in the army have expressed their opinion that its immediate establishment is a necessity.

It does not add an additional cent of cost to the government, for the present expense of incompetent, unorganized civilians by contract is simply to be replaced by an organized service, the competency of which is to be guarded by a proper examination.

The details of soundness in the horses purchased for the government, their shoeing, the quality of their forage, and their hygiene in corrals or in transports, which to-day are left to the accident of the personal interest of the officer in charge, will be given the attention of officers held responsible for them. The meat fed to our soldiers will hereafter be inspected.

En résumé, a needed service, which has been neglected in the United States Army, is to be replaced by an organized service such as exists in all the efficient armies in the world except our own.

Senator Kenney, of Delaware, has prepared an amendment for the Army Appropriation Bill, which provides for a small Veterinary Corps, to consist of a Chief Veterinarian, with the rank of Colonel, and thirty Assistant Veterinarians, ten with the rank of First Lieutenant and twenty with the rank of Second Lieutenant. Provision is made for five future promotions—one Veterinarian, with the rank of Major, and four Veterinarians with the rank of Captain—to be competed for as the Corps develops its efficiency. Provision is made for those veterinarians who are now serving in the cavalry regiments, under the act of March 2, 1889, according them rank and permanent positions, with the opportunity of obtaining promotion.

A majority of Congress—the Senate and the House of Representatives—have declared to their constitutents that they favor and will support the legislation for the establishment of this Veterinary Corps; and yet there are many other things which our legislators have to do. Taxes and death are certainties. Meanwhile the soundness of the United States dollar has to be placed beyond controversy; a navy has to be built; agriculture and commerce have to be fostered; the question of Puerto Rico, Cuba, the Philippines, and other matters of vital importance occupy the minds of the President and the statesmen of the country.

A Staff Corps, an Artillery Corps, an increased mobile cavalry, and the necessary transportation for our army, involving hundreds of millions of dollars, requires the attention of the War Department. The details of the few millions invested in the animals of the army seem a small item, though on the improvement of their efficiency lies the foundation of the efficiency of the field artillery, the cavalry, the transportation of the Quartermaster's Department, and the health and safety of our soldiers.

IF THEY THINK, THEY WILL ACT.

This is not a political question; it is one of economy to the government.

We have only to fear INERTIA.

Let every veterinarian, if he has not done so yet, bring the subject before the Governor of his State, agriculturists, horsemen, and the members of his State Legislature, and when they understand the merits of it, and realize the advantages which it will bring, request them to write personal letters to their Senators in Washington, requesting them to bring the subject before the SECRETARY OF WAR and their colleagues in the Senate to SUPPORT SENATOR KENNEY'S AMENDMENT TO THE ARMY APPROPRIATION BILL, ESTABLISHING A VETERINARY CORPS IN THE UNITED STATES ARMY.

DETROIT, SEPTEMBER, 1900.

AFTER an earnest battle for the place of meeting in 1900, Detroit has won this distinction by a vote of 7 to 6, Minneapolis leading as second place. In the selection of Detroit the Association has decided upon a city and within the borders of a State that has never had the

the value and impetus of a meeting of the Association. It will reach through Detroit a section of the United States and Canada where a large number of the profession reside and too small a number members of the Association. Detroit is a splendid convention city. It has abundant railroad facilities. It is well supplied with hotels. Her people are hospitable, and the city has charms to rouse the interest and contribute to the pleasure of every one.

The time is auspicious for a meeting in that State, for the profession is rent asunder with internal strifes for leadership. The value of her imperfect legislation is further imperiled by the dissensions over the appointments on her State Board and the scope of the work still a matter of conjecture. The Chief Veterinary Official of the State is openly charged with incompetency in the daily papers throughout that Commonwealth. The lack of support by the profession and the State has closed the doors of a school that endeavored to maintain the standard of the American Veterinary Medical Association, and sent from the State one of the ablest veterinarians she possessed. A rival school, the outcome of the high course at Detroit, established by one who was unable to maintain the school at the latter point, and which now maintains a curriculum that makes her graduates ineligible to membership in the American Veterinary Medical Association, and which is practically a one-man school. The State Association is not a unit on any of the leading questions of the day for the welfare of the profession, and the time is propitious, the hour one of need for the presence of and assistance of some strong power to aid in the solution of these trying conditions.

Let us hope the convention of the A. V. M. A. will prove the panacea for all these ills.

A WELL-DESERVED RECOGNITION.

THE profession over the entire country will with one accord approve heartily the action of Governor Stone, of Pennsylvania, in the reappointment of Dr. Leonard Pearson, State Veterinarian. The overwhelming testimony as to the valued services of Dr. Pearson to the people of Pennsylvania in placing veterinary sanitary work on a strong basis, on conservative plans that have now the support of the live-stock owners of the whole Commonwealth, not to speak of the monetary losses conserved, the more valued health of the people preserved, and the reduction of losses that fell heavily on an already burdened class of our people, met a hearty response at the hands of the Governor, and this new lease of power is sure to add again to the interests of our people and be more and more appreciated by the entire country who are watching zealously the outcome of the plans in Pennsylvania dealing with State problems of the greatest moment.

OUR NEW YORK QUARANTINE STATION.

THE serious charges of Mr. T. S. Cooper as to the lack of proper observance of quarantine regulations and the inefficiency of the buildings, etc., set apart for this work by the Department of Agriculture at Garfield, N. J., resulted in an investigation of the same, followed by the dismissal of Dr. W. B. E. Miller, the veterinarian in charge. We do not propose to sit in judgment as to the justness or wisdom of this decree, but if a half is true of what Mr. Cooper charges the dismissal of the inspector will only be a partial rectification of the evils to be corrected. The Government is unbending in its decree as to the ninety-days' stay as to cattle and other animals, but it only half performs its duty to the interests involved when it fails to vouchsafe to those who employ their money in importation of foreign bred stock, every care, protection, and faithful stewardship of the animals intrusted to its keeping. Let the light in, and let there be a radical correction of the evils complained of.

AMONG NEW BOOKS AND PUBLICATIONS.

PERHAPS of all veterinary literature provided for the practitioner or student there is no field so poorly supplied as in the pathology of sheep. So little is taught of them in our veterinary colleges that many graduate without any knowledge beyond that of knowing that the ovine family is within his domain and that scabies and foot-and-mouth disease are scourges of this industry and field of investment. More than this, the average student has little or no knowledge of the varieties of sheep, their habits, or diseases; the vast moneyed interests wrapped up and the large number of people interested in their development and improvement. These conditions have made opportune the publication of such a work as has just been sent forth from the pen of Veterinarian William A. Rushworth, Inspector of the Bureau of Animal Industry. It will prove a work of inestimable value to the veterinary profession, not that it is destined to shed any special light on the pathology of many of the more serious scourges of sheep-breeding and raising, but that it has in a very complete manner covered the whole range of the sheep field—first, in the complete description of all the varieties of sheep, their points of merit and value, their peculiarities; second, the whole range of their many diseases, with plain statements as to treatment; third, in the compilation of all the laws relative to Federal and State inspection, importation, and exportation. The thorough manner in which this industry as a whole has been treated is bound to awaken a deeper interest in its importance as a much neglected branch of the field of veterinary medicine, and it is to be hoped that the book will meet such a reception at the hands of the profession as to insure the continued interest of the author and compiler, that its value in the field of pathology may be added to from time to time.

ANTISEPTIC TREATMENT OF WOUNDS. By DR. H. FRICK, County Veterinarian of Hettstedt, Germany. Translated and published by ALEX. EGER, Chicago, Ill. With annotations by Professors A. H. BAKER and L. A. MERILLAT.

THIS subject, which has undergone so radical a change during the past five years and made possible surgical interference along lines heretofore considered too dangerous, has awakened a wide interest among veterinarians, and, like their brother surgeons of the human family, are no longer free from the responsibility of giving that detailed attention to wounds and broken surfaces which are adopted in human surgery.

The book is divided into nine chapters, covering the history of wound-care, infection of wounds, asepsis, antisepsis, and disinfection; disinfection of infected carriers and the wound; suturing and ligation material, drainage, bandages; antiseptic mode of treating wounds; antiseptic outfit for practice; examination of wounds and their preparation for operation; operations with antiseptic precautions. In this manner it well covers the whole field of wound-care and giving the best methods, latest treatment of the subject, and relative value of the various remedies used in the treatment of wounds. It will prove an addition to veterinary literature that should be in the hands of a large number of practitioners, whose carelessness and neglect of every precautionary measure lead to much loss of time, money, and service in tedious wound-healing that have made unpopular many lines of surgical interference that should be more generally adopted. This book will be a revelation to many of such members of the profession.

MANUAL OF PRESCRIPTION WRITING AND DOSOLOGY. Prepared for Students and Practitioners of Veterinary Medicine. By H. D. HANSON, D.V.S., of New York City.

THIS, the second work of Dr. Hanson, and which has been in contemplation and preparation for some time, has just reached us. It has been dedicated by the author to Professor M. H. McKillip, founder of the McKillip Veterinary College of Chicago, as a fitting testimonial to his modest support and deep interest in the welfare of the veterinary profession.

Divided into ten chapters, covering fully prescription writing, grammatical prescription construction, Latin terms and abbreviations; combinations of drugs, and incompatabilities, solubility of drugs; weights and measures, officinal preparations, tables of doses, to which are added a large number of favorite prescriptions of prominent veterinarians. From the purely veterinary stand-point this subject has never been so completely treated of, and it will prove a helpful assistant to the student, while the older practitioner, grown careless and indifferent as to his prescription writing, will do well to spend an hour or two each week delving into its valuable contents. There will be a wide sale of this work because of its containing many favorite prescriptions of successful practitioners, and we trust it will well repay the author, who has spent so much time in the preparation of his contributions to veternary literature.

GUIDE TO PRACTICAL MEAT-INSPECTION. By DR. F. FISCHOEDER, late Director of the City Abattoirs and Stock-yards, Bromberg, Germany. Translated by A. T. PETERS, D.V.M., Investigator of Animal Diseases, Nebraska Experiment Station. Published by Alex. Eger, Chicago, Ill.

THE translator of this work, well known to the members of the American Veterinary Medical Association, has endeavored in the production of this work to translate only those parts of the author that cover in general the subject of meat-inspection, and special laws and ordinances of Germany not applicable to the United States have been supplanted by the laws and ordinances under which this work is carried on in our country.

The subject has become one of such great importance in our land that everything written or printed in the English language has been eagerly sought and studied. Our national meat-inspection service has grown more rapidly than our men have been properly equipped for the work to do.

After treating in a general way of the construction and functions of the various parts of the animal body, the normal characters of the organs are explained at considerable length and made clearer by numerous illustrations. The whole field of instructions to our United States inspectors is added, as well as many valuable points from those long experienced in our meat-inspection service. Contagious and parasitic diseases are fully covered, as well as special chapters relating to the detection of trichinosis. The work will be generously received by the veterinary profession at this time and its value duly appreciated. The work deserved more careful preparation at the hands of the publisher and more efficient proof-reading before sending it forth from the press.

COMMUNICATIONS.

UNIVERSITY OF PENNSYLVANIA, DEPARTMENT OF VETERINARY MEDICINE.

OFFICE OF THE DEAN, PHILADELPHIA, January 17, 1900.

DEAR SIR: It has for many years been the practice of the leading physicians in nearly every community to go from time to time to one of the centres of medical education for the purpose of pursuing post-graduate courses of instruction. In this way they have been enabled to keep in touch with the advances in medical science and to freshen their knowledge. Veterinarians, on the other hand, have not adopted this practice, although the need for it cannot be less among members of our profession than among physicians. This condition is, no doubt, due in part to the fact that no arrangements have been made for providing short courses in the kind of work that practitioners of veterinary medicine wish to pursue.

It is now proposed to offer a six-day practical course in State veterinary medicine, bacteriology, meat-inspection, and dairy inspection. The plan provides also for clinical demonstrations in surgery, for visits to at least two of the best dairy farms in the country, and for free discussion by the members of the class of all of the subjects taken up in the course.

This course is provided especially for the veterinarians of Pennsylvania who are interested in the broader public aspects of veterinary science (those who act as inspectors for the State Livestock Sanitary Board), but it will include instruction in many subjects of use in everyday private practice.

Among those who will take part in the discussions are Drs.

Ravenel, Harger, Adams, Hoskins, Conard, Klein, and Pearson.

It is proposed to begin this course at the Veterinary Department of the University of Pennsylvania, Tuesday, February 27, 1900, at 8.30 A.M. This time has been selected because the State Veterinary Society meets on Tuesday, March 6th, and it is known that many veterinarians will come from distant parts of the State to attend this meeting. By coming one week earlier, advantage can be taken of the special course and the meeting at one visit.

While there is always some difficulty in leaving a practice for a week or ten days, it is to be remembered that the purpose in so doing is to acquire knowledge and experience that will make the services of the veterinarian of more value to his clients.

There will be no charge for tuition and no other fee, so the only expense will be for board and railroad fare.

This course is offered to all legally registered veterinarians in Pennsylvania.

Those who wish to take this course are requested to send their names as soon as possible to the undersigned.

Respectfully yours,
LEONARD PEARSON.

NOTES.

HOG INSPECTION IN GERMANY. Dr. Vosburg Rekow and Edmund Wirth, the former a Director of the Imperial Central Bureau of Commercial Treaties of Germany, and the latter a large manufacturer and President of the Chamber of Commerce in Seraw, Brandenburg, have just concluded an inspection of the Chicago packing houses.

They expressed their pleasure and astonishment at the cleanliness of the methods. They admitted that hog-inspection in this country is a great deal better than the German method, because, they say, if any trichniæ are found in Germany the meat after being cooked for a certain period is put on the market; whereas here if the smallest defect is found the pork is used for by-products.—*Sanitarian,* January, 1900.

The Board of Health of Columbia, S. C., is conducting a prosecution of one of its principal butchers for the slaughter and exposure for sale of a number of carcasses of hogs from a carload shipped into that city, many of which had and subsequently died of hog-cholera. There is entirely too much latitude given certain dealers and butchers in allowing them to go out and openly buy diseased stock or animals from infected premises, and rapidly prepare the same for market. A few prosecutions and vigorous punishment to offenders would have a salutary effect in breaking up this unscrupulous and dangerous practice.

South Carolina has suffered much the past year in great losses of swine from hog-cholera which prevails in many districts. In certain sections of the State where the stock law is rigidly enforced the reduction in outbreaks of Texas fever have been most marked. The cattle tick has disappeared from these sections. Along the coast and southern districts of the State the disease prevails, and cause many losses. The State has no laws for the control of animal diseases, and many loads of cattle from infected districts are shipped to Columbia, Charleston, Richmond, and Norfolk. The last Legislature authorized the State Board of Health to establish such quarantine measures as will protect the live-stock interests of the State, and co-operate with the Department of Agriculture. The State Board of Health has no veterinarian upon its board, and the lack of knowledge of those upon the board makes the law practically a dead letter.

Berlin, Germany, has become quite a centre of distribution of the American heavy draught horses, some of them being shipped from this centre to Italy.

Brood mares are again bringing excellent prices, and reports from all over the country indicate a return to breeding again on a broader and better scale.

Secretary of Agriculture Wilson visited the National Farm School at Doylestown, Pa., during the Christmas holidays. Among those who assisted in entertaining him were State Veterinarian Pearson and Dr. W. G. Benner, who teaches veterinary science at the Farm School.

The British Government has purchased two shiploads of common horses in the North Pacific country for use in South Africa. The horses which went begging for $10 a head last year were sold for $47 each.

The two Arabian stallions which were presented by the Sultan to General Grant when the latter was in Constantinople on his way around the world, are still alive. One of them, Linden Tree, who is now about twenty-five years old, is owned by General Colby, of Beatrice, Neb.

A series of experiments which have been carried on for some time past by the Agricultural Department at Washington have recently developed a new use for cornstalks, from which a very valuable horse and cattle food can now be made by grinding the dry cornstalks, leaves, and tops to a powder and mixing it with blood or molasses or both. This is pressed into cakes under a hydraulic press.

C. W. Williams names his horses alphabetically, and by remembering the year he started it is an easy matter to get at the age of any horse he ever bred. Mr. Williams began breeding in 1885. His first foals came in 1886, and their names all began with "A," as Axtell and Allerton. The next year Barnhart came. The name of every foal he raised ten years later begins with "J," the tenth letter of the alphabet. He has now been in the business fourteen years, and the name of every foal of 1899 begins with "N."

The representatives of the British Government who have been buying mules in Missouri, Texas, and other Southern States and shipping them to South Africa for use in the campaign against the Boers, have received instructions to purchase 10,000 more good animals. A prominent mule dealer of Austin, Texas, recently received a telegram from one of the representatives, now in New Orleans, offering good prices for as many animals as could be furnished him. The shipment of 2000 mules from Fannin County to South Africa by way of New Orleans began December 14th.

TUBERCULOSIS AMONG BELGIAN CATTLE. Consul Roosevelt, of Brussels, August 22d (Consular Reports, No. 230) transmits the following:

The Minister of Agriculture has invited provincial agricultural societies to make known to farmers and cattle breeders through the medium of lectures, notices, and circulars the means of fighting the increase of tuberculosis among cattle. Their attention is to be notably drawn to the hygiene of stables, as in many districts, especially the Campine and Ardennes, the stables are very badly kept. The peasants are afraid of leaving the doors of the stable open on account of draughts, which they think highly injurious to the cattle, and it is difficult to make them understand that stables are contaminated when deprived of fresh air. Also very little attention is given to cleanliness. Frequently the litter is allowed to accumulate for weeks and even months until the unfortunate animals stand knee-deep in it. Under such conditions it is easy to understand that such stables become propagating beds for the germs of tuberculosis. As it is difficult to make the peasants understand that upon the cleanliness of the stable largely depends the eradication of the disease among their cattle, it has been determined to organize competition, awarding premiums to farmers taking good care of their cattle and stables.—*Sanitarian,* January, 1900.

The Secretary of Agriculture in his report just issued, referring to the work of the Bureau of Animal Industry, says :

The work of this Bureau increases rapidly. Meat inspection was conducted last year at one hundred and thirty-eight abattoirs in forty-one cities. The ante-mortem inspections were 53,223,176, while the number in 1892 was 3,809,459. The third year of experimentation with hog-cholera shows that from 75 to 80 per cent. of hogs injected with serum are saved. Encouraging results have come from the introduction of dairy products into foreign markets. The Department sends shipments abroad for the purpose of ascertaining the facts regarding such products, these facts are published and commerce naturally follows.

The Bureau's work is summed up in a number of forceful recommendations, of great importance from a public health point of view, and of vast moment to the commercial industries involved.

It is a source of much pleasure and surprise to note the many directions of work covered by the Department of Agriculture, and how far-reaching must be the results obtained in solving the many problems wrapped up in nature, which are ofttimes barriers to the welfare and advancement of a large body of our people.

A better knowledge of this great work done by this department in its economic relations with our people would add much to its better support and make of force the many recommendations made by the Secretary.

Rochester, N. Y., has repealed a recent city ordinance relative to a milk standard based upon the number of bacteria per cubic centimetre of milk. It is said to have conflicted with laws of the Department of Agriculture of the State.

SOCIETY PROCEEDINGS.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE regular monthly meeting was held at 8 P.M., December 12, 1899, in the reception-room of the Odd Fellows' Temple. In the absence of the President, Dr. Thomas B. Rayner was called to the chair, and Dr. E. M. Ranck was appointed Secretary *pro tem.* in the absence of Secretary Rhoads. The following members of the profession were present: Drs. T. B. Rayner, Williams, Underhill, Marshall, Pearson, Hoskins, Schneider, Harger, Rhoads, Lintz, Drake, and Ranck. Dr. J. C. Morris, honorary member, was also present.

The programme consisted of the discussion of milk-inspection and reports of cases. The discussion on milk-inspection was opened by Dr. Ranck on the needs of a more thorough system of inspection. Dr. Hoskins followed with remarks favorable to the delivery of milk in sealed jars or bottles when so prepared at the source of production. Dr. Leonard Pearson addressed the Association at some length on ways and means to educate the public to the appreciation of a better milk-supply, suggesting that this may first be aided through the medical profession.

(*a*) By veterinarians writing papers including the necessities for better milk-supply, the paper published, and reprints sent to all physicians.

(*b*) Issuing a regular bi-weekly ' milk paper," to be distributed broadcast, especially among the medical profession.

(*c*) By certain forms of letters (personal) to the physicians.

(*d*) By personal demonstration of facts regarding the dangers through an inefficient milk-inspection as well as the proper manipulation of the product; also through that class of people who are in favor with the movement tending to better the health condition. Through the farmer by making his product worth more in the market.

Dr. J. Cheston Morris addressed the Association from the position of one who had dealt with the question from a productive stand-point for more than twenty years. He thought the public much better informed and more aroused to the importance of a wholesome milk-supply and to the dangers incidental thereto than they had ever been before, and the best way to get a better article is through the pockets of the producer; as his returns increase so can the quality of the milk; by contributing to the pages of local papers and the discussion of the subject a valuable plan to arouse interest and just rivalry among the producers. He drew attention to the subjoined interesting facts:

1. That the average milk-supply for each man, woman, and child in a number of Eastern cities is from two-fifths to one-half pint, and careful investigation shows that it should be at least one quart.
2. That two quarts of milk and one-half loaf of bread contain more nutriment than the ration of the French Army.
3. That one quart of milk contains more nutriment than one pound of meat.

Further remarks were made by Drs. C. J. Marshall, Williams, and others.

The discussion closed with the appointment of a committee to take the matter in charge for further consideration at the January meeting.

Reports of cases being in order, Dr. Leonard Pearson reported an outbreak of a disease, apparently specific in character, infectious and contagious, resembling influenza in a mild type, with one death, that exhibited on post-mortem small areas of pneumonia, but not sufficiently extended to cause death; the animal exhibited rise in temperature, increased pulse; but one exhibited a cough, marked depression, and a very light per cent. of the horses in the stable escaping. The cases under the charge of Dr. Williams were very light and slow to respond to a varied line of treatment. The use of distemper antitoxin was suggested in connection with general stimulating treatment. This was done with apparent good effect in a number of cases.

Dr. Hoskins reported a number of diabetes insipidus, or polyuria, in a number of horses, with a detailed statement of the chemical tests of the urine, the same showing as low a specific gravity as 1003 to 1007, the absence of albumin or sugar and alkaline in character. The use of sanmetto, combined with nux vomica, gave permanent and gratifying results, with no disposition to recurring attacks.

President Rayner appointed the following committee to consider and further the milk question: Drs. Pearson, Hoskins, Ranck, Marshall, and Rhoads, after which the meeting adjourned.

E. M. RANCK,
Secretary pro tem.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

THE seventeenth annual meeting of the Association was held at the Sherman House, Chicago, November 15 and 16, 1899.

The meeting was called to order November 15th at 11.30 A.M., President W. J. Martin in the chair. The following members responded to roll-call: Drs. W. J. Martin; Fry, of Naperville; Story, Gunning, Judson, Worms, Walker, Jas. Robertson, E. L. Quitman, J. T. Nattress, A. G. Alverson, Hugh Thompson, J. T. Ryan, J. L. Siegrosser, W. H. Welch, A. H. Baker, R. T. Hoadley, F. A. Pressler, N. I. Stringer, Albert Babb, and Brown, of Galesburg.

The minutes of the last regular meeting were approved as read, after which the meeting was adjourned.

Meeting called to order at 2.30 P.M. President Martin, in his interesting annual address, gave a résumé of the status of the veterinary profession, and called attention to the ignorance of the medical profession regarding the close connection between diseases of animals and man, and suggested that every medical college should have on its staff a veterinary instructor.

Dr. Hugh Thompson then read a paper on several interesting cases of bowel trouble, and one of apparent choke.

The same was thoroughly discussed by Drs. Nattress, Robertson, E. L. Quitman, A. H. Baker, and Alverson.

Remarks were next made by D. A. H. Baker on "The Prevailing Influenza," which was liberally discussed by Drs. Robertson, E. L Quitman, Pressler, Alverson, and Nattress.

The meeting was then adjourned until Thursday at 10 A.M., to meet at the Chicago Veterinary College for clinic.

November 16, 1899.

Upon reconvening at the Chicago Veterinary College the following clinics were presented:

A case of locomotor ataxia, one of fracture of the ilium just below the articulation with the sacrum. This condition was diagnosed by Dr. A. H, Baker, and the horse, which, by the way, was an old worn-out cripple, taken to the dissecting-room, where he was destroyed, and upon post-mortem examination Dr. Baker's diagnosis was confirmed.

One case of quittor: One serous cyst on hindquarter due to a kick from another horse; one suspected case of glanders. Mallein test without result.

One case of tetanus, in slings; one operation of low neurectomy, and I would state in regard to this case that healing took place by primary union in one week. Operation performed by Dr. A. H. Baker.

The clinics at the college were very instructive, and were highly appreciated by all present.

Meeting called to order at 2.30 P.M. at the Sherman House, President Martin in the chair.

Dr. Albert Babb read an interesting paper of a case of nasal polypus, the same being of extraordinary size and weighing two pounds two and one-half ounces when removed.

Operation was fully described and resulted in complete recovery. Discussed by Drs. F. H. Pressler, E. L. Quitman, A. G. Alverson, and N. I. Stringer.

Next we had a paper by Dr. James Robertson on "Our New Veterinary Law." Discussed by Drs. Nattress, Quitman, Wessler, Alverson, and Stringer.

A general discussion on tuberculosis was participated in by Drs. Martin, Robertson, Quitman, Alverson, Storey, Stringer, Babb, Ryan, and Nattress.

Dr. Ryan made a suggestion that this Association shall take action in regard to State legislation in regard to tuberculosis in this State, and said there should be something done in reference to National legislation on this subject.

The Treasurer's report was handed in, read, and on motion was approved.

The following members were elected for the ensuing term to fill the several offices: President, W. J. Martin, Kankakee; Vice-President, T. J. Gunning, Neponset; Secretary, A. C. Worms, Chicago; Treasurer, R. G. Walker, Chicago. Censors: A. H. Baker, Chicago; Albert Babb, Springfield; R. W. Story, Princeton.

After several minor discussions regarding our Constitution and By-laws, it was moved by Dr. Robertson, seconded by Dr. Siegrosser, that a vote of thanks be extended to Dr. A. H. Baker for the clinics held at the Chicago Veterinary College.

A vote of thanks was tendered Drs. Walker, Ryan, and Robertson for the clinics which they furnished. A vote of thanks was extended to J. Irving Pearce, proprietor of the Sherman House, for his kindness and hospitality to the veterinary profession.

Motion made and carried that a vote of thanks be extended to Messrs. E. R. Squibb, Schering, and Glatz, and Merck & Company for the splendid display of drugs and chemicals exhibited at the Association meeting.

It was moved and seconded that our next semi-annual meeting be held at Springfield, Ill.; carried.

Motion made to adjourn, which was carried.

ALBERT C. WORMS,
Secretary.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

THE autumn session for 1899 was held in the city of Scranton, Lackawanna County, on Tuesday, September 19th.

The local reception committee treated the members and ladies present to an early morning drive over the Scranton new boulevard and around Lake Scranton *via* Nay Aug Park. At a picturesque bend of the road on the shore of the lake Mrs. Dr. Helmer photographed the excursion party, which enabled the members to avail themselves of a memento of one of the most beautiful niches in nature that Northeastern Pennsylvania affords.

Returning to the city, dinner was partaken of at Hotel Jermyn, after which the members repaired to the Board of Trade Building, the beautiful assembly room of which had been engaged by the Committee of Arrangements for the deliberations of the convention.

At 2 P.M. the President, Dr. J. Curtis Michener, of Colmar, Pa., took the chair and called the meeting to order.

In the absence of the Recording Secretary, Dr. C. J. Marshall, Dr. Helmer, ex-Secretary, was asked to perform the duties of this office. Roll-call was responded to by the following members: Drs. J. W. Adams, J. F. Butterfield, John R. Courtright, George B. DuBois, J. C. Foelker, Jacob Helmer, W. Horace Hoskins, J. D. Houldsworth, Edward Hogg, J. Curtis Michener, Otto G. Noack, Leonard Pearson, Thomas B. Rayner, James B. Rayner, R. G. Rice, W. L. Rhoads, D. C. Stanton, James H. Timberman. Visitors were: Drs. H. R. Church, Luzerne Borough, Pa.; W. J. Fretz, Perkasie, Pa.; Charles T. Gelbert, Jr., Scranton, Pa.; L. E. Mead, Tunkhannock, Pa.; W. J. Niles, Pleasant Mount, Pa.; E. E. Tower, Montrose, Pa.; H. A. Paget, Scranton, Pa.; A. R. Potteigor, Selin's Grove, Pa.; W. J. Storm, Dunmore, Pa. A motion made at this juncture by Dr. Pearson to the effect that the reading of the minutes of the previous meeting be dispensed with, owing to the lateness of the hour and the length of the report, received a ready second and was carried.

Dr. Michener, the President, then addressed the meeting. His remarks were extempore, and were listened to with pleasure and interest.

The Corresponding Secretary read a list of names of those desiring to become members, and the Board of Censors acted upon the same, with the result of the recommendation of Dr. E. E. Tower, Montrose, Pa.; Dr. A. R. Potteiger, Selin's Grove, Pa.; Dr. S. Nichols, Wellsboro, Pa., who were then by acclamation duly elected as members of the Association. The application of Dr. J. P. Vasey was laid over, and the Corresponding Secretary was requested to inform him of the disposition of his application.

Letters of regret at not being able to attend the September session in Scranton were received from Drs. Francis Bridge, M. J. Chrisman, J. Buckham, C. R. Good, David Martin, C. Courtney McLean, S. Nichols,

W. Ratcliff, and James A. Waugh. Also a telegram was read from Dr. C. J. Marshall, of Philadelphia.

Drs. C. R. Good, of Lock Haven; David Waugh, Pittsburg, and C. Courtney McLean, of Meadville, Pa., were unanimously reinstated as members of the Association, a motion on reinstatement having been made by Dr. Rhoads, stating that the members named had paid their dues, and requested that their names be replaced upon the roll. A motion that the Committee on Resolutions write to Dr. Collins regarding the welfare of his son, who was very ill from appendicitis, was favorably received, but Dr. Rhoads explained that he had already written to Dr. Collins in reference to the condition of his son, expressing the solicitude of the Association in his rapid restoration to health.

There being present no delegates with reports, Dr. Rhoads suggested and the president asked those persons present who were delegates to the National Association, so recently held in New York, to favor the members with a talk upon their observations while in attendance.

The President called upon Dr. Hoskins, who in his usual happy way made interesting remarks, which were followed by Dr. Pearson upon the same subject.

As County Secretary for Lebanon County, Pa., Dr. M. J. Collins reported that there had been no new registrations in his county during the year. In one section there had been a slight outbreak of spinal meningitis. Tetanus also was frequent. Had cured about 50 per cent. of cases treated this summer.

Dr. J. Buckham, writing for Beaver County, reports that there have been no outbreaks of contagious diseases since the last meeting. That the breeding of horses is increasing, fewer horses are bred in this county, but are of a better grade than formerly, especially light drivers; also that there has been considerable trouble from non-professional opposition.

Dr. C. R. Shaub, for Lancaster County, reports that among the diseases which have occurred during the year tetanus has probably been the most prominent. Out of fifteen cases thirteen were in barns where tetanus had previously existed. About one-half of the cases presented wounds. In our treatment of these cases we employ corrosive sublimate. For four or five days we give each day a hypodermatic injection of hydrarg chlor. corro., two grains, sodium chloride, five grains, in distilled water from five to six drachms, then continue giving the same solution internally in quantities which contain six grains given three times daily. Give it in the food or drink. From this line of treatment have had five recoveries from six cases. More dogs suffering from rabies have been met than ever before. All were of the dumb variety. Contagious skin diseases among dogs are not as prevalent as in previous years. Parturient paresis is frequent. Using the iodide of potash treatment have lost but one out of ten cases during the year.

There were no reports offered from the Committees on Intelligence and Education, Legislation, and Sanitary Science and Police.

(To be continued.)

MISSOURI VETERINARY MEDICAL ASSOCIATION.

THE eighth annual meeting convened December 30, 1899, in the lecture-rooms of the Kansas City Veterinary College, Kansas City, Mo. The members and veterinarians present were Drs. W. B. Welch, Charles Ellis,

L. M. Klutts, Horace Bradley, J. B. Black, S. Stewart, B. F. Kaupp R. C. Moore, Louis Medsker, J. S. Buckley, James L. Otterman, C. M. McFarland, Charles Canfield, J. S. Grove, C. A. Monney, D. W. Elliott, H. T. Doak, and H. G. Patterson.

An interesting clinic, conducted by Dr. R. C. Moore, was held in the operating-room of the college at 1 P.M., lasting five hours. It was enjoyed by all present, and it was the unanimous decision that clinics should be one of the features of our meetings in the future.

The evening session opened at 8 o'clock, with President Dr. L. M. Klutts in the chair. Dr. S. Stewart and Dr. W. B. Welch were elected members. The application of Dr. V. J. Andre, of St. Genevieve, was received too late, but will be acted upon at the next meeting.

The following officers were elected for the ensuing year: Dr. H. Bradley, Windsor, President; Dr. J. W. Connaway, Columbia, Vice-President; Dr. B. F. Kaupp, Kansas City, Mo., Secretary-Treasurer.

Dr. S. Stewart, chairman of the Committee on Legislation, made a report, which was received and the committee discharged. Dr. Charles Ellis, of St. Louis, moved that the President appoint a committee to work for the legislation bill, the committee to consist of one member from each Congressional district; seconded, and motion carried.

A good and interesting programme was rendered, and all joined in a lively discussion of the papers. Many interesting cases were reported. The report on the use of black-leg vaccine proved that it has been very efficient in the hands of veterinarians in the State.

At 12 o'clock a motion was carried to adjourn to meet in St. Louis, October, 1900.

HORACE BRADLEY, V.S.,
Secretary.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

THE meeting was called to order at 8 o'clock P.M., November 24, 1899. Mr. Tallman, '00, was appointed critic. It was moved, seconded, and carried to dispense with the regular order of business.

Mr. Young, '00, then read an excellently prepared paper on "Irregularities of the Dental Apparatus."

Dr. Pearson, Dean of the Veterinary Department, then addressed the Society on "Horse Breeding." He gave an elegant address, and showed the members photographs of the various breeds of horses which are important to students of veterinary medicine. A vote of thanks was extended to Dr. Pearson, and also to Mr. Young.

Discussion of the banquet was then taken up. It was moved, seconded, and carried that the Chair appoint a committee of three to arrange for the banquet.

The Chair then appointed the following committee: Messrs. Cornman, '00, Carlisle, '01, and McCloskey, '02.

Next in order was the Treasurer's report. This was his first report, and in it he stated the financial condition of the Society, which was very encouraging.

The critic's report was very favorable.

Adjourned at 9.30 P.M.

December 18, 1899.

The meeting was called to order at 7.15 o'clock P.M., on Friday, December 8th. Mr. Cornman, '00, was appointed critic.

It was moved, seconded, and carried to renew our subscription for the *Pennsylvanian.*

The Librarian was authorized to look into the matter of having the papers brought into the reading-room, and also to report what was being done in regard to printing the By-laws.

The Supper Committee reported that they had selected the Hotel Aberdeen for the banquet.

It was moved, seconded, and carried that the banquet be held December 16th, at 9 o'clock P.M. It was also moved, seconded, and carried that the Secretary invite by letter the three clinical professors and also the resident surgeon.

Mr. Van Sant was then proposed and elected to membership.

The critic's report was favorable.

Adjourned at 8.30 P.M.

The third annual banquet of the Society was held on the evening of the 16th of December at the Hotel Aberdeen. There was a large attendance, and the evening was very pleasantly spent. At a seasonable hour an elegant supper was spread, which was greatly enjoyed by all.

This affair has been enrolled in the archives of the Association as the greatest social function in the history of its existence, and to use a by-word of our alma mater, " It is important to the veterinarian."

The affair was voted by all present to be a great success.

HARRY E. BENDER,
Secretary.

MAINE VETERINARY MEDICAL ASSOCIATION.

THE regular meeting was held at Waterville, October 13, 1899.

At 10 o'clock a clinic was begun, which lasted all day, with the following operations:

Fistula of the inferior maxilla, Dr. West; cauterization of spavin, Drs. Freeman, Purcell, and Blakely; removal of tumors, Dr. Joly; fistula of the withers, Dr. West; castration of ridgling, Dr. Salley.

All the operations except cauterization of spavin were performed under the influence of chloroform.

All were well pleased with the day's operations, and felt well repaid for the time and trouble to attend the meeting.

At 7.30 P.M. a meeting was held at the Elmwood, President West in the chair. Drs. Freeman, Joly, Purcell, Blakely, West, and Salley responded to the roll-call. Minutes of previous meetings were read and adopted. Voted to adjourn to meet at Augusta in January.

DR. I. L. SALLEY,
Secretary.

Dr. William J. Denton, of Philadelphia, is the only breeder of the Pekinese Spaniels in America and a historian on the Chinese development of these curios in the canine world.

CURRENT THOUGHTS.

A WELL-KNOWN authority on livestock—a judge and breeder of national reputation—while not particularly antagonistic to the tuberculin test, said very emphatically in a recent interview:

"I can go into a herd of Jerseys, or Holsteins, or Shorthorns, or any other breed, and pick out by physical examination almost every cow that has tuberculosis. They are bound to show the presence of the disease if it has progressed far enough to be dangerous."—*Jersey Bulletin.*

While we know there are men possessed with great talent, yet this assertion will need some further explanation before we discard tuberculin and go back to physical examination alone. What is meant by "almost every cow?" Does he mean a large percentage of errors? Then again he says, "They are bound to show the presence of the disease if it has progressed far enough to be dangerous." Now, will he explain what symptoms or signs will lead us to know when the danger line has occurred? If he can do this we recognize the fact that he has no use for tuberculin. We know that our best and highest educated veterinarians make the assertion that tuberculin is the most sensitive and exact method of making a diagnosis of tuberculosis that we possess to-day.

We find in our practice that the dairyman judges us by our exactness.

Unless this gentleman can teach us his method of examination and prove to us that his percentage of errors will compare favorably with tuberculin, we will continue to use tuberculin. But when we use good judgment and physical examination with the tuberculin test we will make but few errors.

PERSONALS.

Dr E. Newcomer, of Mt. Joy, Pa., was a visitor to Philadelphia in the early part of December.

Among the leading candidates for the position of State Veterinarian in Maryland are Dr. Clement, for reappointment; Dr. Robert Ward, who preceded the present incumbent; Drs. Grogan and Martinet, all of Baltimore, and Dr. F. H. Mackie, of Fair

Hill, member of the State Board of Veterinary Medical Examiners. The race promises to be a heated one, and several dark horses are under special grooming for the much-coveted position. The joys of public place are full of anxious ones in attainment.

Dr. J. D. Bell, of Flushing, Michigan, has succeeded by purchase to the practice of Dr. A. L. Compton, at Williamston.

Dr. S. W. McClure, of Oxford, Pa., was a visitor to Philadelphia in December after a ten days' sojourn in North Carolina, following the trophies of the gun.

Dr. R. S. Huidekoper returned to Washington early in December to again assist in the directing of efforts looking forward to the attainment of better recognition of the veterinarian in the United States Army.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, was a visitor to the city of Pittsburg early in December on official business.

Dr. A. L. Compton, of Williamston, has gone to Morrice, Michigan, where he has engaged in practice.

Dr. Charles M. Frantz, of Lehighton, is now a resident of Philadelphia, but is not engaged in veterinary practice.

Dr. C. E. Tomlinson, formerly of Williamsport, is now a resident of Panther, West Virginia, having entered upon a professional contract with one of the largest lumber merchants of that territory. His duties are mostly performed on horseback, and cover many miles among the lumber camps.

Dr. W. H. Ridge, of Trevose, Pa., takes an active part in directing the affairs of the Southampton Farmers' Club.

Dr. W. N. D. Bird, recently located at Nashville under the Bureau of Animal Industry, has been transferred to St. Louis, Mo.

Dr. G. R. Neson, State Veterinarian of South Carolina, will shortly issue a bulletin on tuberculosis, showing the result of some two hundred tests. One herd of sixty, supplying milk to a large number of Charleston families, revealed the presence of tuberculosis in thirty-one head of these animals. The sale of a portion of these animals was followed by the owner resuming his business, and in the absence of specific laws he suffered only a temporary decrease in the sale of the product.

Dr. Louis A. Klein, of Philadelphia, will lecture on "Meat Inspection" at the Veterinary Department of the University of Pennsylvania the remaining portion of the college year.

Prof. Wesley Mills, of Montreal, Canada, has gone to Leipsic, Germany, for a period.

Dr. Joseph Plaskett, of Nashville, Tenn., successfully passed the civil-service examination, and on the eve of a command to report for duty at Chicago was selected by the English Government to accompany a shipment of mules by transport to South Africa.

Dr. Daniel Lemay, of the U. S. Army, is now located with the 7th Cavalry at Columbia Barracks, Havana, Cuba.

Dr. E. A. A. Grange, now of New York City, has an interesting article in the December 30th issue of the *Rider and Driver*, on "The Knights of the Leather Apron and Iron Horseshoe."

Dr. Charles A. Dohan, of Darling, Pa., is master of the hounds of the Lima Hunt Club, and daily leads the lovers of this sport in their following of the hounds.

Dr. G. W. Dunphy, State Veterinarian of Michigan, recently discussed the milk-question and the danger of the transmission of tuberculosis before the Fourth Annual Conference of Health Officials of the "Wolverine State."

Dr. Wm. Dougherty, of Baltimore, Md., entertained a number of his male friends of that city on Christmas day in a thoroughly royal manner.

Dr. Harry Marshall, of Georgetown, Del., was a visitor to Philadelphia in the latter part of November.

Mr. R. A. Pearson, of the Dairy Division of the Department of Agriculture, was a Thanksgiving-day visitor to the "City of Brotherly Love." He never loses an opportunity of focussing types of dairy stock, and makes good use of his pastime with the camera.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, addressed the Southampton Farmers' Institute on January 9th on "The Relation of Stabling Conditions to the Spread of Tuberculosis."

Dr. A. W. Ormiston, of Germantown, Pa., is an enthusiastic breeder of beagle hounds, and their sharp, shrill voices are the sweetest music to his ears in the gunning season.

Dr. S. L. Blount, who recently located at Martinsville, West Virginia, has been engaged by British officials to accompany an export of some nine hundred mules to South Africa.

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RHEUMATISM IN DOMESTIC ANIMALS.[1]

BY HERMAN WELLNER, M.D., V.S.,
NEW YORK CITY, N. Y.

IT is with great reluctance that I received and accepted the invitation to address you at this time. I was first surprised that I should have the privilege of this opportunity, then I was dismayed at the thought of the undertaking; but at last, Mr. President and gentlemen, I was pleased and am pleased to-day to be accorded the honor of endeavoring to entertain you at this time. I chose the subject "Rheumatism in Domestic Animals," hoping that in the broad field which it opens to our view I might be able, out of the little experience which I had, to offer you something of note.

What does the word rheumatism signify? Does it signify the characteristic signs of the disease or the etiological name for it? Some authors give the origin for the word rheumatism from the Greek *rheo,* run, since the pain spreads from one part of the body to the other, and therefore seems to run through the body. Prof. Fröhner says that the term rheumatism should refer to muscular rheumatism only, while the term arthritis should be given to that constitutional disease which manifests itself in the fibrous tissues about the joints and sometimes in the ends of the bones. Like syphilis, it simulates many other diseases. The term rheumatism may also refer to an arthritis or to the infectious diseases—endocarditis, pleuritis, gonorrhœa rheumatica, etc.

There are several theories concerning the etiology of rheumatism, and I will try to explain one after the other. The first one is the lactic-acid theory—*i. e.,* there is a deposit of lactic acid in the affected parts of the body. This deposit is formed by the activity of the muscle through the transformation of glycogen in sugar and lactic acid. In general, the lactic acid is excreted by the body through kidney and skin (the lactic acid giving the peculiar odor to the sweat). When the muscular activity is diminished by exposure to cold the lactic acid will be retained and deposited in some parts of the body and gives rise to the pathological changes. The proofs for this theory are:

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[1] Presented before the meeting of the American Veterinary Medical Association, New York, September, 1899.

(*a*) Lactic acid was found in the urine of patients suffering from this disease.

(*b*) In diabetes mellitus where lactic acid was therapeutically given in large doses there has been observed a polyarthritis—an inflammation of more or less joints in the body.

This theory is disputed by some authors, who say:

1. It has never been proved that a larger excretion of lactic acid through the kidneys was presented by patients suffering from rheumatism.

2. Heinzeman and Senator (*Ziemssen's Encyclopædia*) say that the cause of arthritis is an increased secretion of lactic acid whereby the solid substance of the bones is dissolved, and therefore distorted and deformed joints result; this disease is different from rheumatism.

3. It is incredible that through exposure to cold and a deposit of lactic acid in the body rheumatism should exist for a long time, and sometimes for life, while lactic acid is continually excreted from the body.

4. We find cases of rheumatism in which neither exposure to cold nor strong muscular activity can be proved; therefore formation of lactic acid cannot take place.

5. Why should only lactic acid be the cause of rheumatism and not also the other chemical substances or toxic substances which are formed during the muscular activity?

The second theory is from Lotham (*British Medical Journal*, 1880), who says rheumatism will be produced through hyperoxidation of the muscles. In the normal condition there exists a nervous centre for the tissues of the muscles; if this centre is affected there will be an impediment to the chemical change. As in the normal condition, through the aid of the nervous centre, the muscles receive the oxygen through the blood circulation and give up carbon dioxide, there is in a diseased condition a retention of CO_2 in the tissues of the muscles; the blood will be oxidized or deoxidized, and that produces rheumatism, as there is now no activity of the nerves. But against this theory are the following objections:

1. It has not been proved that there exists such a centre which produces those chemical reactions.

2. Zunt proved that in fibroma there exists an oxidation of the tissues of the muscles, and therefore an augmented activity of the nerves, although rheumatism is not present.

A third theory is that rheumatism is a neurosis—*i. e.*, that exposure to cold affects the vasomotor nerves or the trophic nerves, whereby the centres of those nerves will be irritated, and therefore cause the inflammation. This means that there does not exist such a centre like a nervous centre which will be affected, but a trophic disturbance of different centres, like a sweat-centre, heat-centre—a condition which we find in human beings, as people affected with rheumatism perspire very heavily. In regard to this theory, rheumatism is nothing else than a neurosis catarrhalis; and as we know that when a number of persons are exposed to cold only a minority suffer from rheumatism, so we must come to the conclusion that there exists a rheumatic diathesis or disposition in different individuals who will be easier affected than others.

A fourth theory is that rheumatism is a miasmatic disease; there is a bacillus which produces this disease. Nuclagen, an English author, compares this bacillus with the bacillus of malaria. But against this theory there are the following objections:

1. We know that rheumatism is, in most part of the cases, hereditary—*i. e.*, the disposition to the disease.

2. If rheumatism were miasmatic there must be a country where this disease does not exist, like malaria; but, on the contrary, we find this disease in all countries.

3. Persons contract this disease by exposure to cold or to dampness.

A fifth theory is that muscle rheumatism and arthritis are two different diseases.

Muscle rheumatism is nothing else than an inflammation of the muscles—a myositis. The exposure to cold irritates the trophic nerves of the skin, which in a reflected way irritate the muscle nerves, whereby the vasomotor nerves also become irritated; this disease has, therefore, all the characteristics of a nutrition disorder, depending upon disturbed functions of the nerves that control nutrition.

Arthritis is a miasmatic disease; the micrococcus enters the body through the large pores of the sweat-glands, whence it is circulated through the blood-current into the heart, where they produce an endocarditis, and into the joints, through the capillary emboli, an arthritis. As a proof that arthritis is an infectious disease, Prof. Fröhner says that the following pathological conditions exist:

(*a*) General fever; (*b*) the synchronous affection of several joints, although situated some distance from one another; (*c*) existence of endocarditis; (*d*) as an arthritis, for example, has been observed in cows after confinement; the retention of the after-birth has been the cause of it.

Recklinghausen and Klebs say that the specific poison of the micrococcus of arthritis has the same effect on the joints and the fibrous structures as vaccination, as the whole body is affected at once.

Fleishhauer reports that he found in a case of arthritis acuta miliary abscesses in the heart, kidneys, and liver. A similar report of two cases I have to communicate to you:

CASE I.—A strong, well-nourished eight-year-old horse, which had been used for light work, was found one morning in the stall in such a condition that it could not be moved from one side to the other; it could not stand on its legs, but kept its position by leaning against the partition; it stood there with drooped head, which could not be lifted upward; the superficial temperature of the skin was not evenly distributed; the pulse was 85, strong, and there was marked palpitation of the heart; auscultation of the heart revealed nothing extra; but after four days there were, on auscultation of the heart, perceptible plain friction-sounds; palpitation of the heart was very strong; pulse weak; temperature 107° F.; when it was tried to move the horse it showed great pain by groaning; percussion revealed pleuritis. The treatment consisted in giving large doses of salicylic acid and fomentation of the body; the pain disappeared, but as endocarditis was present the horse died after nine days. My diagnosis of rheumatismus universalis was based on the following symptoms: (*a*) Pain all over the body; (*b*) disappearance of pain after the administration of the salicylic acid; (*c*) affection of the serous structures.

The post-mortem revealed small abscesses immediately under the pleura pulmonalis; also similar abscesses were found in the liver, spleen, and kidneys. In the left ventricle of the heart there was a fibrinous deposit upon which coagula formed; further, there were present the pathological signs of pericarditis and pleuritis.

CASE II. was a seven-year-old horse, which after three days' illness was brought to me for treatment. Upon inquiry I found that the horse was very often shoulder-lame, dependent upon the weather. On examination I discovered pulse, 69, weak, heart beat rapid and diastolic, and post-systolic murmurs, temperature 105° F., respiration 30 and shallow. Apparently there was present an inflammation of the respiratory muscles. On the right side of the lungs friction-sounds were heard; left side was negative. Percussion caused great pain. From the nostrils there escaped liquid, which blistered the skin, also on the septum you could see superficial ulcers. In the cavity of the mouth there were also ulcers, caused by licking of the liquid which was running from the nostrils. The patient could hardly pick up his food; defecation was difficult and scanty; tenesmus was present; feces contained mucous membrane; later on the feces were mixed with blood.

In this case I also diagnosed rheumatism in connection with endocarditis, pleuritis, pneumonia infectiosa, and intestinal auto-intoxication. The post-mortem revealed abscesses in all parts of the intestines, but more developed in the large intestines; larynx, pharynx, œsophagus, and stomach were covered with ulcers; in the lungs, liver, and kidneys were miliary abscesses like those found in glanders, without their characteristics. Although this may be mistaken for acute glanders, the post-mortem proved otherwise; and I would like to impress upon the members of this association, whenever they come across such cases, to make a thorough examination, and not to condemn such patients as affected with glanders.

There is one form of rheumatic poisoning in which the rheumatic poison does seem to be present as a permanent element; it manifests itself in skin eruptions and in a tendency to repeated attacks of tonsillitis, neuritis, and anæmia.

Drs. Barlow and Warner (*Transactions of the International Medical Congress*, 1881) have drawn attention to the development of fibrous nodules in the subcutaneous tissues in connection with rheumatism. In many cases you find such fibrous and tendinous nodules under the skin, in the muscles, or tendons; so among cows along the spinal column, among horses on the shoulder, among dogs on the tendons. In children they can be seen most frequently and when the poison seems to be very virulent; the disease runs a fatal course, with chorea, pleurisy, endocarditis, pericarditis, then terminating with nephritis.

Etiology. (*a*) Change in the weather; damp or cold weather are frequent causes of the disease.

(*b*) Great exertion and excess of exercise also influence; for example, hunting dogs are more disposed to this disease than pet dogs.

(*c*) Age; horses in middle age are more apt to contract this disease than old or young ones.

(*d*) Diathesis; that rheumatic diathesis is of a hereditary nature; this has been certified by all authors. Some individuals are hardly ever free from rheumatic manifestations; some do not acquire this disease at all; there is always a predisposition present.

(*e*) Natural immunity; some animals having more cellular activity than others, and as a consequence a greater power to resist the invasion of the disease.

Semiology. Symptoms are different. In light cases there are none, but in chronic cases we find pain in almost every part of the body, tenderness on pressure over the muscles to which the inflamed nerves are distributed; but a very characteristic symptom is the change of the seat of the pain; the latter disappears after exercise or may be more easy; sometimes you can hear a peculiar crepitation in the joints; also fever is present, high pulse, and rapid respiration. As complications, may follow endocarditis, pericarditis, pleuritis, pneumonia, or bronchitis. It is very important in making the diagnosis to find out if the disease is primary or secondary; this has a great deal to do with the treatment. Sometimes we find cases where we diagnosticate congestion of the lungs or pneumonia, and after giving the ordinary medicaments we find, the next day, that there is no symptom of pneumonia present; some authors signify this as a one-day pneumonia. But why can we not suppose that this was acute rheumatism and a speedy recovery followed? The history in such cases is very important.

In regard to the pathological changes, they are sometimes not very noticeable, especially in acute cases. In chronic cases you find hyperæmia, hemorrhages, serous infiltration of the tissues, maceration, and muscular disintegration. Siedamgrotzky found in a dog suffering from rheumatism all the aponeuroses, muscles, and capillaries injected; in another case he found an interstitial chronic myositis of the mastoidei.

Therapeutics. In regard to treatment I must refer you to the text-books. In local affections you use stimulants like spirits of camphor, olei sinapis, ammonium caustic, with massage and Priessnitz wet-packs. In shoulder rheumatism hypodermic injections of veratrin, 0.5 to 0.1 in 0.5 g. of alcohol, increasing daily 1 g. and discontinuing it every fourth or fifth day; the latest treatment is hypodermic injection of atropin sulphate, 0.05, and morphine sulphate, 0.2, in 10 g. of water; but as in some cases colic follows you must warn the owner of the animals to watch very carefully the effects. Internally the best remedies are acid salicyl, natr. salicyl., tart. stibiat, pilocarpin, 0.4 to 0.8; as the latter has a diaphoretic effect, there is danger on exposure to cold. The diet also must be carefully regulated.

Before closing this paper I would like to mention especially muscle rheumatism in dogs; more commonly you find the abdominal muscles affected than the muscles of the neck, back, and loins. Pain is very great; the abdomen is swollen and tender; at the start there exists vomiting and anorexia, acceleration of respiration, panting, irregularity of heart-beat, high temperature, great thirst, and constipation. Duration of the disease is from seven to ten days. Sometimes the patient recovers and gets another attack, especially pet, over-fed, and stout dogs. Therapy consists first in intestinal evacuation, as oil ricini, with small doses of calomel. To relieve pain you use liquor opii sed. or hydrotherapeutic measures; internally, natr. salicylic in small doses, bismuth, etc.; as food, milk, with beef-extract; in chronic cases natr. bicarb, nux vomica, rad. gent., colombo. If paralysis is present, electricity or liniments and strychnine injections.

Now, gentlemen, pleading for conservatism in your treatment of this first effort as an author, and hoping that you will excuse the rambling and somewhat disconnected nature of this discourse, and thanking you for your kind attention, I hereby submit this paper for your consideration.

MUNICIPAL MILK- AND MEAT-INSPECTION.[1]

By E. J. Netherton, V.S.,
St. Joseph, Mo.

The production and distribution of milk- and meat-products engage the attention of no small part of our population. The use of milk is general and not limited to any class or locality. It is regarded as a necessity by almost every family, and for this reason information regarding it is important. By milk is meant the properly handled product of healthy, well-fed cows. It is a little heavier than water. Its specific gravity varies from 1029 to 1033. The first milk given after birth is called colostrum. It contains a large proportion of albuminoids, and is not fit for food except for the new-born, and any milk having a large amount of sediment is suspicious.

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[1] Read before the Missouri Valley Veterinary Association, December 11, 1899.

Particles of dirt are signs that germs are abundant. Thus dirty milk may be dangerous as well as disgusting. The dirt in milk consists mostly of particles of dead skin and manure which fall into the pail from the body of the cow during milking, but dirt and dust in the vessels used for handling milk and unclean attendants are also common sources of dirty sediment in milk.

Milk from unhealthy or unthrifty cows, or that which has been handled by sick persons, is dangerous, as it contains infectious germs or foreign substances which may affect the health of the consumer. The germs of diphtheria, typhoid and scarlet fever and tuberculosis (consumption) have been found in milk, and thus transmitted to man and spread from family to family. Feverish cows, those having just given birth to young, and sometimes cows that have been milked a long time, produce milk which should not be used. Any milk having an unnatural appearance or odor should be discarded.

The most common forms of fraud practised with milk are the removal of part of the cream by the aid of a milk-separator and the addition of water. Most communities have laws against adulteration, but they are not as rigidly enforced as they should be. The law in this State requires at least 3 per cent. of butter fat, but the custom among dairymen is to have their milk come barely within the bounds of the law, and no more. If a dairyman is dishonest enough to water his milk he will not be careful about the purity of the water added. Contagious diseases have been traced directly to contaminated water added to milk for the purpose of adulteration or which has been used to rinse the cans. There are also various chemicals added as preservatives. The most common substances contain salicylic acid, boric acid, borax, or formaldehyde. These are not regarded as poisons, but when taken regularly in small doses in milk they have an injurious effect upon the system.

But here is not where the danger lies. The chief object of inspection is to determine whether the meat- and milk-products are from animals that are free from diseases, especially tuberculosis. It has been known for some years that the milk of cows suffering from tuberculosis may contain tubercle bacilli. The bacilli consumed in the milk by infants and children may lead to tuberculosis (consumption) in one or more of its numerous forms. It has been the object of investigators, both in the medical and veterinary professions, to find out exactly under what condition the milk from tuberculous cows may be dangerous. Both classes maintain that the tubercle bacilli may pass into the milk when a cow is affected with tuberculosis to a marked degree or even when the udder remains free from disease. Tuberculous deposits in the udder, when they have reached a certain size, can be detected in life. For this reason the inspector should condemn the milk of all cattle suffering from tuberculosis, because even if the udder is not visibly diseased tuberculosis may nevertheless be present. The great importance of a regular periodical inspection of dairy cattle is thus made manifest. If only such animals in which the udder is found diseased would be condemned and the milk rejected a large amount of the injury done by tubercle bacilli in milk could thereby be avoided. Those tuberculous animals in which the disease of the udder escapes attention because of its restricted character would still distribute tubercle bacilli. But inspection done by a competent veterinarian would largely relieve apprehensions of the public which have been aroused by the extended discussion which this dread plague of tuberculosis has undergone in all journals. But the public should be made aware of the great danger in the use of milk from cows which are beginning to emaciate or whose udders are diseased. If we bear in mind the wide distribution of infectious diseases in cattle, especially dairy herds, it would lead us to believe that dairy herds collected in different localities were always found to be more or less diseased or infected. It is essential, therefore, to guard the milk-consuming public against disease, to look with suspicion upon all dairy cattle, and more especially those that have not been inspected. The greater dependence of the cities on the food furnished in the shape of meat and milk has with unerring certainty multiplied the number of tuberculous cases. If mothers better appreciated the dangers to which their little ones are exposed, numerous diseases occasioned by the use of meat from animals teeming with bacterial growth, more of them would exercise their influence in securing the proper inspection of these products. It behooves the city officials and the veterinarians as sanitarians to exercise their most energetic influence in awakening the minds of the people to the dangers thus lurking in the meat- and milk-supply, and from the dangerous power that the milk-supply of our city exercises in acting as the vehicle of transportation of such diseases as tuberculosis, diphtheria, typhoid and scarlet fever, and many others.

Under the present existing circumstances we have slaughtering establishments owned by butchers who buy their stock for slaughter where they choose, and they are beyond the reach of the Federal authorities. Why? Because government inspection only applies to abattoirs having an interstate trade. These parties say they are only supplying the local and State trade, and, therefore, are at perfect liberty to buy and slaughter any kind of stock they choose, be it healthy, crippled, or diseased. Here State and municipal laws come into control, if any law exists. These places have been visited by the writer, and the unspeakable filth and lack of all cleanliness point them out as sources of disease and a standing menace to the consumer of meats slaughtered there, without consideration of class of animals killed. It is true there are exceptions to the rule, but they are very few. If any adequate reason ever existed for Federal meat-inspection the same reasons are of equal force as applying to State and municipal inspection. For this inspection to be complete a man who is a graduate veterinarian should have charge of the inspection of all animals killed or offered for slaughter, and the stamp or official seal of soundness should be affixed to his products, so it will be free from all suspicion of disease and stand equally as good before the public as meats from abattoirs licensed by the United States authorities. It is said no law is stronger than the public opinion behind it. I feel confident public opinion in this city will be forceful enough to sustain all municipal legislation on this subject. Next, the veterinarian appointed to enforce the ordinance should be a member of the board of health, for it certainly is a matter concerning the health of many people. He thus has representative men to reinforce his decisions. Again, it is not a question of politics, but of efficiency, and should be free from politics. He should receive a salary commensurate with his services, and should devote his time to the work along with other duties that will properly come within his province. The municipal control of meat- and milk-supply in cities is one of the necessities of the times if we wish to keep disease from doing its deadly work.

That milk is a vehicle by which disease is transmitted is a well-established fact in the minds of all educated men. In how many ways an animal may be the source of infection it would require too long a time to describe. But tuberculosis and other diseases of the udder and teats suggest abundant causes of infection. The determination of these causes can only be described by the veterinarian. That diseased and tuberculous cows are in our herds is true if the observations and experience of other cities are true. The municipality, the council, or board of health have the undoubted right to take the whole subject of meat- and milk-inspection under city control, and it is for them to enact ordinances protecting the public from diseased meat and impure milk. The salary of an educated and competent veterinarian would approximately be $1200. Place the meat and dairy inspection under his control as a city official, and license all butchers and dairymen, but hold them to a strict conformity to the ordinance, or revoke their license and publish the facts. To neglect wise and thorough control of the meat- and milk-supply of any city is to invite the dissemination of diseases of the most prevalent and fatal character. The municipal authority of this city should stand for the health of this community, for the health of the babies and invalids who depend upon this milk for food. Are the people willing to take the risk? I am of the opinion that the lack of such inspection and control is due not to the wilfulness, but to indifference and ignorance of the true conditions. Let the people agitate until their will is obeyed.

POST-MORTEM MEAT-INSPECTION OF SWINE.

By W. E. Howe, V.S., D.V.M.,
ASSISTANT MEAT-INSPECTOR, CHICAGO, ILL.

In dealing with this subject of meat-inspection perhaps it will be well, for the benefit of those present who have not witnessed the killing of hogs on a large scale, to give a little idea of how the work is accomplished.

The inspector is on the bench with the workmen who remove the viscera from the carcass. The hogs are hung on an iron rail by means of a pulley, which has a double hook to catch the gambol-stick. They are then moved along the rail by means of an endless chain running parallel to the rail, which has fingers projecting to catch behind the pulley and move it along, so the hog is in constant motion. The inspector is provided with a seat, usually at the end of the bench and so situated that the hogs pass on review so closely that the inspector can touch them without rising from his seat. The viscera are dropped on the bench beside him, where he has a good view. Thus the hogs pass in different houses at a rate of from two hundred to seven hundred an hour. The inspector keeps watch, and any carcass that shows evidence of disease is tagged. The viscera are also tagged and saved, the two tags bearing duplicate numbers, so the viscera can be readily found that belong to any hog in question. The diseased carcasses are run into a separate place from the others, so that they can be examined closely after the day's work is finished. Then they are disposed of as the case demands, either put into the offal-tank or released.

In this paper time will not permit me to cover all the diseased conditions with which we come in contact, so will only touch upon a few. But, first, what good reasons have we for condemning any of these diseased conditions which we find?

1. For sentimental reasons.

2. There is a sufficient amount of good meat in this country that can be obtained at reasonable figures, so we do not need to eat any but what is free from disease.

3. For the effects it would produce upon the one consuming the meat.

As many of the diseases with which we come in contact most frequently are of bacterial origin, it brings up the question of "How do bacteria produce disease?" Many theories have been brought forward at different times, but the theory which now is generally accepted is that symptoms and disease are caused by the chemic poisons produced by the microörganisms. Here three possibilities present themselves: First, the organisms themselves may be poisonous, or the poison may be an integral part of them. Second, the microörganisms may be intimately associated with or may produce a soluble chemic ferment which by its action on the body produces the symptoms of the disease and death. Third, poisons may be produced by the cellular activity of the bacteria. The correctness of this theory has been tested by a large number of investigators with the result that its correctness has been fully established. It is now known that the pathogenic germs grown in meat-broth and other culture media elaborate chemic poisons which when injected into animals induce in an acute form one or more of the symptoms of the disease caused by the microörganism. It can now be safely stated that every germ which produces disease does so by virtue of its chemic poisons.

The diseases most frequently found by the inspector are hog-cholera, swine-plague, tuberculosis, metritis, peritonitis, pleurisy, pneumonia, bruises, tumors, nephritis, and hogs that have died just previous to the time of slaughter.

We will turn our attention for a few minutes to hog-cholera and swine-plague, which are by far the most frequent causes for condemnation. The causes of these diseases are bacilli differing in many ways and alike in many respects: the bacillus cholera suis and the bacillus of swine-plague, which I will not describe.

In giving the pathological lesions those only that may be readily seen by the inspector in his hurried examination will be dwelt upon.

Probably the first noticed are the red spots which appear upon the surface. They may be small spots a little larger than a pinhead, but close together, or much larger ones the size of a pea; others may be close together, perhaps coalesced to form still larger ones, and I have seen other severe cases with scarcely any spots at all upon them. Still other cases will have a diffuse redness around the scrotal region and a red line along the under side of the abdomen. In some it will be confined principally to the ears, which will be much swollen and covered with red spots. In the majority of cases the spots will be thicker and better defined on the inner and softer portions of the skin.

The appearance of the intestines varies much with the severity and stage of the disease at the time it is seen. As they are dropped upon the bench beside the inspector they may not attract any particular attention. The lymphatic glands of the mesentery may be inflamed. If the intestine is slit the punctiform hemorrhages may be found, or in more severe cases the button-like ulcers; still others will show the mucosa sloughed away for a long distance and the inflammation extending through the wall of the intestine, showing severe inflammation and extravasation of blood into the mesentery and the surrounding fat. The kidneys also have small punctiform hemorrhages in the cortex and frequently in the extremities of the pyramids. The peritoneum occasionally presents hemorrhagic areas, especially upon the sides, and easily noticed against the fat which forms a white background. The spleen is enlarged, swollen, full of blood, very soft and brittle, dark-colored, almost black. The lungs present a varying appearance, sometimes only a few small areas of congestion will be seen, while in others larger portions will be involved in a pneumonia. Punctiform hemorrhage may also be seen on the base of the tongue, on the heart, and in severe cases in nearly all parts. The lymphatic glands throughout the system are much enlarged, swollen, congested, and when cut appear to be full of blood. Sometimes the glands will appear to be inflamed only upon the surface. The bones appear normal upon the surface, but when cut the cancellated structures will appear very black.

In swine-plague the lesions are so similar to those of hog-cholera that it is hard to distinguish one from the other, and the two diseases are seen together in the same animal so frequently that it cannot be done in the short space of time allowed us for examination. The principal difference seems to be that in swine-plague the disease begins in the lungs and spreads from there to other parts, while in hog-cholera it appears to have started in the intestines and extended from there to other parts. But the pathological lesions are so similar that a positive post-mortem diagnosis cannot be made without the aid of the microscope.

Why do we condemn for this disease? First, for sentimental reasons; second, we find that the hog-cholera bacillus produces a ptomaïn which has been called sucholotorin, and a proteid substance called suchaloalbumin. Experimentally these substances in very small doses are not fatal to experimental animals, but in larger doses they will produce death with some of the prominent symptoms of hog-cholera. A properly regulated dose will produce a sickness for a short time, when recovery will take place, and afterward the animal will show some immunity from the disease.

Dead hogs. One difficult point ofttimes is to be able to say absolutely whether a hog has died a short time before it was stuck and scalded, or whether it was poorly stuck, so it did not bleed out well, and consequently fell into the tub alive and was drowned while being scalded. In both cases when the animal reaches the inspector it will show that it has not bled out well. The lungs, kidneys, and liver will be full of blood in both cases. If the hog was poorly stuck and dropped into the scalding tub alive, there would still be the peristaltic action of the bowels, some twitching of the muscles, and possibly some beating of the heart, while in a dead hog these would be absent. Sometimes in cases it is difficult to make a clear distinction. If they are permitted to hang in the cooler for a few days, the dead one will show signs of decomposition. The dead ones are always condemned, no matter how well they may appear after they are dressed and hung in the cooler. The hogs frequently die from exhaustion, heat, and asphyxiation. In these cases we would have in the flesh a large amount of the waste matters of the body which have not been thrown off, and being full of blood putrefaction soon starts, consequently the flesh would be filled with the ptomaïns of putrefaction which are putrescine and cadaverin. These ptomaïns are capable of producing strong inflammation and necrosis. Cadaverin is one of the substances which can set up suppuration in the absence of bacteria. In Asiatic cholera the necrosis of the intestinal epithelium and the muscular spasm are thought to be due to this same product.

In tuberculosis the pathological lesions of the diseases are so well known that I will only make a few remarks, which will apply especially to the disease as found in swine. This disease in swine originates most commonly from indigestion, so that the disease does not appear first and most prominently in the lungs and respiratory tract, but in the digestive organs and their accessory glands, principally in the liver and spleen. Here it is seen either as miliary granulations scattered in great numbers throughout the thickness of the organ, or else of rounded nodosities, which are yellowish-white in color, varying in size from that of a pea to that of a hazelnut. On section they appear sometimes softened in the centre, but rarely infiltrated with calcareous salts. Lesions similar to those of the liver may be seen in the lungs in severe cases, but generally there is found in these organs an innumerable quantity of minute gray granulations caused by generalization through the blood-stream, in which case the liver, the spleen, the kidneys, the medulla of bones, and the mammæ are usually infiltrated with similar growths. Cases are sometimes seen in which the disease appears to be localized in a few glands. The tonsils and the pharyngeal or submaxillary glands are the ones most often affected. They become voluminous, hard, and knotty, as they have undergone a true fibrous transformation ; here and there small yellow foci are seen of a soft consistency, sometimes veritable purulent collections are found, either encysted or in communication with the interior. If the caseous or purulent matter be subjected to any examination tubercle bacilli are not usually found, but upon inoculation they are found to be present. The generalization of the disease, especially in the muscular tissue, is reported by several observers.

Why do we condemn for this disease? I think there is not one present at this meeting who would hesitate to condemn a hog for tuberculosis. I condemn every one found that shows symptoms of the disease, because in swine it becomes generalized so quickly, and the result of experiments upon this subject show that muscle-juice of tuberculous swine is often virulent. Another point worthy of consideration is the increased danger from the consumption of meat from tuberculous swine over tuberculous cattle, which is due to its greater tendency to become generalized in swine. The consumption of tuberculous pork by a person inclined to be tuberculous or who is afflicted with the disease in a latent stage would be like taking a small dose of tuberculin, and it produces the same effect —that is, to awaken the disease afresh and start it on in its deadly course.

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Vaughan and Novy: "Ptomaïns, Leucomaïns, Toxins, and Antitoxins."

SOME RECENT RUSSIAN WORK IN VETERINARY SCIENCE.

BY E. V. WILCOX, PH.D.,
WASHINGTON, D.C.

RUSSIAN veterinary journals are not very extensively subscribed for in this country, and in the veterinary journals which are published in this country one sees but few references to the current Russian literature. There are two veterinary journals published in Russia which are of especial value, and which contain for the most part records of original investigations along lines which are most studied at the present time. These journals are *Arch. Vet. Nauk*, published in St. Petersburg, and *Uchen Zapiski Kazan. Vet. Inst.* The following is a list of the titles of the more important articles which appeared in these two journals during 1889:

Archiv. Vet. Nauk, St. Petersburg, 1899, *vol. xxix.*

The Production of Immunity Against Rinderpest and the Treatment of this Disease, V. E. Vorontzov and others, pp. 1–30, 119–159, 191–227.

Serum-therapy in Chicken-diphtheria, D. V. Devel, pp. 30–49.

Experiments with Serum-therapy in Contagious Pleuropneumonia of Horses, E. N. Usoltzev, pp. 49–62.

The Problem of Fighting the Siberian Plague with the Kazan Vaccine, P. Drozdov, pp. 86–97.

A Study of the Microörganisms of the Alimentary Tract, Y. I. Uspenski, pp. 160–176.

Herpes Tonsurans in Horses, O. S. Kramarev, pp. 176–182.

Some Cases of the Use of Arecolinum Hydrobromicum, M. L. Blumenfeld, pp. 182–187.

Experimental Data on the Problem of the Susceptibilty of the Camel to Rinderpest, M. Tartakovski, pp. 228–254.

Experimental Inoculation of the Camel with Glanders, E. P. Dzhunkovski, pp. 255–264.

Chinosol as a Disinfectant, E. Turkin, pp. 265–281.

Results of the Measurements of Cattle at the Warsaw Agricultural Exhibition, M. V. Zhravski, pp. 281–287.

The Application of X-rays to Veterinary Practice, M. A. Maltzev, pp. 291–298.

Manure and the Natural Agencies which Disinfect It, S. S. Evsyeenko, pp. 298–306.

A New Pathogenic Microbe (cocco-bacterium æruginosum), I. P. Markov, pp. 306–308.

The Pathological-anatomical Changes Produced in the Organs of Mice and Rats by the Rat-destroying Bacilli, G. S. Kulesh, pp. 309–321.

Extent of the Practical Application of the Pasteur Prophylactic Inoculations Against Hog-cholera, O. I. Markevich, pp. 321–331.

The Treatment of Milk-fever with Iodid of Potash, E. Turkin, pp. 331–334.

A Study of Bacterium Coli Commune, A. V. Byelitzer, pp. 339–364.

Treatment of Canine Distemper, M. A . Maltsev, pp. 364–367.

The Influence of Veratrin and Ergot upon Asthmatic Breathing which Accompanies Broken Wind, I. L. Prushkovski, pp. 376–370.

The Influence of the Blood Serum of Horses upon Guinea-pigs, M. N. Zhezhelenko, pp. 423–453, 479–494.

The Diagnosis of Glanders, V. M. Sulin, pp. 454–473.

Anomalous Structure of the Foot in Pigs, N. Dikovski, pp. 473–475, Figs. 2.

Materials for the Study of the Mallein Problem, A. A. Kraevski, pp. 495–516, 519–538.

Death in Horses from Blood Extravasation into the Spinal Canal, L. Doroshenko, pp. 517, 518.

Epizootic Infectious Lameness (hemorrhoids) in Horses, Sotzevich, pp. 381–388.

The Use of Sulphur in the Treatment of Wounds, A. I. Verevkin, pp. 388–395.

Recent Data on the Problem of the Maintenance-ration of Horses, I. Shirokikh, pp. 395–418.

A Case of Carcinoma Hepatis et Renis in a Mare, L. G. Krushinski, pp. 418–420.

A Case of Fracture and Resection of the Rib with Good Result, D. Bliznakov, pp. 420–422.

Parturient Apoplexy in Cows, L. Ivanov, pp. 561–564.

The Illumination of Stables for Domestic Animals and its Influence upon Diseases of the Eye, Tomarov, pp. 552–555.

The Problem of the Influence of the Sex of Horses upon their Susceptibility to Disease, A. Ryazhev, pp. 539–553.

Uchen Zapiski Kazan. Vet. Inst., 1899, *vol. xvi.*

The Pathological-anatomical Changes in the Spinal Cord in Canine Distemper, K. Bol, pp. 1–21, 45–91, 115–228, Plates 2.

Operative Treatment of Scrotal Hernia in Horses, V. A. Glasko, pp. 22–35.

A Simplified Method of Obtaining Corrosion Preparations of the Internal Ear, S. E. Puchkovski and V. V. Zavyatov, pp. 229–243.

Materials for the Study of Hemorrhagic Septicæmia, (swine-plague), K. Z. Kleptzov, pp. 247–334.

Inflammation of the Atlanto-occipital Mucus Capsule, P. Dizderev, pp. 443–451.

This list of titles includes only such articles as represent original and experimental work. Some of them, as, for instance, the article on swine-plague, the article on the changes in the spinal cord during canine distemper, and the article on the mallein problem, are among the most thorough and exhaustive articles on the subjects which are to be found. In a brief note like the present one it is obviously impossible to give the substance of these articles, some of which are of great length. The essential points of such of these articles as are of agricultural importance are given from time to time by the writer in the Experiment Station *Record.* The present list is compiled merely for the purpose of calling attention to this mass of important literature which is much neglected in the United States.

ROUTINE MANIPULATIONS AND OPERATIONS FROM THE STAND-POINT OF ASEPSIS AND ANTISEPSIS.[1]

By Wm. Herbert Lowe, D.V.S.,
PATERSON, N. J.
FORMERLY UNITED STATES VETERINARY OFFICER OF THE PORT OF NEW YORK.

(Continued from page 7, January, 1900.)

In addition to the resources of cleanliness for preserving wounds from becoming the seat of the vital activity of microörganisms, there still remains to the veterinary surgeon the employment of direct applications to wound-surfaces of substances which have the power either to destroy them outright or to restrain their growth. These agents are classified as antiseptics, and their use as above constitutes wound disinfection.

The possibility of obtaining antiseptic results in a wound by agents that simply restrain the growth of septic organisms as well as by those that destroy them, is a matter of great practical importance, for it has increased the number of substances available for antisepsis, and since the preventive effects of many agents can be accomplished by much smaller amounts than their destructive effects, it has been found possible to obtain their antiseptic effects with less local irritation of the wound itself and less liability of danger from absorption of poisonous quantities of the agent into the blood.

In estimating the usefulness of any agent as an antiseptic application in the treatment of wounds, three things have to be taken into consideration :

1. Its power as a bactericide or as a restrainer of bacterial multiplication.
2. Its immediate local effect on the wound-surfaces—neutral, irritant, or caustic.
3. Its remote constitutional effect when absorbed into the circulation.

The bacteria of different species manifest different degrees of vital resistance to chemical reagents.

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[1] Read at the thirty-sixth annual meeting of the American Veterinary Medical Association, September, 1899.

The following table exhibits the strengths needed to destroy the vitality of the micrococci of pus, or to prevent the development of the organisms. The practical application has found its place rather in the preliminary disinfection of materials likely to come in contact with wounds in the course of formal surgical operations than in applications to wounds themselves:

TABLE OF BACTERICIDAL STRENGTHS.

Reagents	Efficient in the proportion of one part in
Mercuric bichloride	20,000
Potassium permanganate	833
Iodine	500
Creosote	200
Sulphuric acid	200
Carbolic acid	100
Hydrochloric acid	100
Zinc chloride	50
Tinctura ferri chloridi	25
Salicylic acid dissolved by sodium borate	25
Citric acid	8
Chloral hydrate	5

The following table shows the minimum quantity required to prevent the development of the pyogenic micrococci:

TABLE OF STRENGTHS REQUIRED TO RESTRAIN BACTERIAL MULTIPLICATION.

Reagents.	Efficient in the proportion of one part in
Mercuric bichloride	35,000
Iodine	4,000
Sulphuric acid	1,800
Carbolic acid	500
Salicylic acid and sodium biborate, equal parts	200
Boric acid	200
Ferric sulphate	200
Sodium biborate	100
Alcohol	10

The foregoing tables are from Dr. L. S. Pilcher's work on *The Treatment of Wounds*, recently issued. I am also indebted to the same author for much valuable data in connection with the subject under consideration.

Comparison of the two tables shows that the more potent bactericides have the power of resisting multiplication in quantities considerably less than are required to destroy vitality. In the case of iodine, the difference is eightfold; in that of carbolic acid, fivefold; in that of sulphuric acid, fourfold, etc.

In addition to those soluble agents marked antiseptic power attaches to many substances which are insoluble or comparatively so. These include iodoform, naphthaline, zinc oxide, bismuth subcarbonate, subnitrate, suboxide and subgallate, aristol, ariol, iodol, nosophen, and other similar compounds. The common property of this group of agents is the inhibition by their presence of bacterial growth and multiplication. To some of them attaches also a chemotatic power—that is to say, the power to stimulate the accumulation of living energetic cells in the wound-surfaces and borders. The effect of this is to strengthen the local resisting power of the tissues and to favor rapid repair.

Carbolic acid, the agent first used in the application of modern antisepsis, and used so extensively by Lister, is now largely replaced by other agents. The properties that commend carbolic acid for use as an antiseptic are its reliability and its diffusibility. Its disadvantages are the local irritation which it excites, its volatility lessening its usefulness as an agent to secure permanent antisepsis, making frequent renewals of the dressings necessary, which renewals violate another fundamental principle of wound-treatment, that of rest; its toxic qualities, dogs and cats being particularly susceptible. Carbolized ointments and solutions of carbolic acid in oil or alcohol have been shown by Koch to be absolutely inert in respect to their action on bacterial life, either on the spores or the fully developed organisms. Anthrax spores introduced into oily solutions of carbolic acid, of thymol, and of salicylic acid, in each at the end of three months were still found capable of development. When, however, the oily solution comes in contact with substances containing water it undoubtedly gives up part of the acid to these, and in this way antiseptic effect may be produced. Carbolic acid is used to good advantage in the antiseptic bath for the immersion of metallic instruments.

Creolin, cresol, and other products of coal-tar distillation have largely superseded carbolic acid. These substances have marked antiseptic power, do not produce so much local irritation, and are less toxic. They form milky emulsions when mixed with water, and have been used in such emulsions in from 2 to 5 per cent. strength.

Salicylic acid and boric acid are feeble bactericides, but potent as restrainers of bacterial activity. They are devoid of the irritating and poisonous effects of corrosive sublimate and carbolic acid.

Corrosive sublimate is largely used as an antiseptic. Koch found that the spores of the bacilli of anthrax, though unaffected by other antiseptics, were killed in a few minutes by a solution of corrosive sublimate, 1:1000, and to have been prevented from developing by a solution of 1:5000. The necessity for changes of dressing with corrosive sublimate are rare. The danger of poisoning from absorption is slight when in the hands of a competent practitioner. Corrosive sublimate is the most reliable agent available for the disinfection of fresh wounds that are known or presumed to be infected. For this purpose 1:5000 aqueous solutions are used. It is much used also in the strength of 1:1000 or 1:2000 for the disinfection of the skin in regions that are to be operated upon, and for the disinfection of the hands of surgeons and assistants.

Iodine and Iodoform. The antiseptic properties of iodine are manifoldly greater than those of carbolic acid—as a bactericide five times, and as a restrainer of bacterial growth eight times as great—but it has attracted general attention only since the introduction into use as an antiseptic of its compound, iodoform. Iodoform did not irritate the wound; it was used both as an application to the wound-surfaces and as an external, antiseptic, protective dressing; its decomposition or its volatilization was so slow that the frequency of the dressings required was greatly lessened. The odor and the toxic qualities of the drug were the chief disadvantages that limited its use. It diminishes secretion, decomposes ptomaïns, and stimulates leucocytosis, and when itself decomposed liberates the germicidal iodine. Aristol, airol, iodol, and nosophen are among the other iodine compounds used as substitutes for iodoform.

Salts of Bismuth. Bismuth subnitrate and bismuth subgallate are of value, especially when used as a powder to be dusted over the skin surrounding a wound, to restrain the activity of epidermal organisms and as a powder applied to granulating surfaces to promote its cicatrization.

Salts of Zinc. Zinc oxide is especially worthy of mention and commendation as a dusting powder in the treatment of burns, excoriations, and abrasions, and for use upon the skin and about a wound and along a suture line. It restrains the activity of the epidermal organisms. It is in itself perfectly unirritating, and with serous secretions forms a bland and soft magma. A mixture of equal parts of zinc oxide and of water, with the addition of 10 per cent. of zinc chloride, forms a paste which, when applied to wounds, rapidly dries into a firm protective crust or artificial scab.

Zinc chloride is very soluble in water, and in the stronger solutions is perfectly caustic. A strength of 1 : 50 is required to destroy pyogenic organisms, and in this strength the living tissues are affected by it, a zinc albuminate being formed which appears as a white translucent film covering the surface to which it has been applied. Its use is restricted to the disinfection of wounds that are already frankly septic. Solutions of from 5 to 8 per cent. strength should be used. The film of zinc albuminate which results is markedly resistant to new bacterial invasion, and further restrains exudation and protects mechanically the underlying tissue. This combination of qualities makes it an antiseptic agent of the greatest value in veterinary practice in dealing with sores and open infected wounds.

Among antiseptic agents may be mentioned aluminum acetate, acetanilid, hydrogen peroxide, mercurie iodate, naphthalin, beta-naphthol, pyoktanin, formic aldehyde, and heat.

Heat. The temperature of boiling water, 212° F., is sufficient to quickly destroy all known pathogenic bacteria. Most spores are also destroyed by this degree of moist heat, but so marked a power of resistance inheres in some spores that they are not destroyed by even so long an exposure as two hours. For ensuring the absolute destruction of all spore life the method of *fractional sterilization* is available.

None of the ordinary pus-forming bacteria are spore-bearers, so that their destruction in such dressings and instruments and materials to be used in wound treatment as will not be injured by moderate heat is simple and rapid. When microörganisms in a desiccated state are exposed to dry heat a much higher temperature is required for their destruction than when they are moist or when they are exposed to the action of hot water or moist steam. For destroying the ordinary pyogenic organisms exposure to at least 212° of dry heat for one hour is required, but to ensure the destruction of spores an exposure of three hours or more to a temperature of 284° F. is necessary.

The possibility of using heat conveniently in the shape of boiling water or of steam for the absolute and certain destruction of bacteria has caused these agents to very largely supersede chemicals for the disinfection of instruments, dressings, and many of the accessories used in the treatment of wounds. Thermic sterilization is much more readily and certainly accomplished than is chemic sterilization.

The Dressings. For absorbent and protective purposes the chief part of a wound dressing is composed of suitable pieces of loosely woven, thin, gauzy cotton cloth, similar to the "cheese-cloth" or "butter-cloth" of the shops; this constitutes the "gauze" of the surgeon. Other absorbent materials may be substituted according to the convenience of the particular case, such as pads of moss or of sawdust, masses of the cotton fibre known as engineer's waste, or of soft absorbent paper, or quantities of oakum, jute, or "wood-wool;" but the superior convenience and the unequalled absorbing qualities of the gauze have caused it to be accepted almost universally by practitioners of human surgery as the staple dressing material. It also has an important place in surgical dressing in veterinary practice. This dressing, like all other dressings and everything else, requires sterilization. Steam sterilization is convenient and effectual.

Boro-salicylated Moist Dressings. For the absorption of primary wound discharges a moist dressing is superior, and in view of the imperfect character of all skin sterilization it is always more prudent to have the dressing which comes in direct contact with the skin in the vicinity of a wound moistened with a solution which at least shall inhibit bacterial activity. Corrosive sublimate solutions at once suggest themselves on account of their potency as a bactericide, but they are too irritating to the skin to be left on many hours in contact with it, and if used freely are liable to provoke the poisonous effects of the absorption of the drug. Carbolic acid is equally objectionable. Boric and salicylic acids, feeble bactericides but potent as retainers of bacterial activity, are free from the objections named as to corrosive sublimate or carbolic acid, and may be used in a solution made by dissolving one ounce of boric acid and eighty grains of salicylic acid in a gallon of boiled water for the preparation of a moist antiseptic absorbent dressing.

Cotton-wool, tow, oakum, jute, turf moss, sawdust, and many other materials are used for surgical dressings. They can be impregnated with such antiseptics as the surgeon considers indicated. In veterinary practice the animal must be tied or secured so that he cannot bite or tear the dressings and bandages off.

I trust that I have said enough to inspire veterinarians to be more painstaking in their routine manipulations and operations. If there is any part of the routine practice that veterinarians are remiss in it is in carrying out the principles of aseptic and antiseptic surgery. The same principles apply to major surgery, and the practitioner who applies these in his everyday practice will be able to apply them also and obtain better results in such major operations as he has to perform.

We want in the veterinary profession to-day men with common sense, common honesty and ability, and a disposition to do the ordinary routine practice methodically and well, who will practice upon the latest scientific aseptic and antiseptic methods; men who are willing to confine their efforts to the legitimate limits of the profession; men who are horsemen in the highest sense of the term, but who are not horse-dealers, horse-jockeys, or liverymen; men who are working to earn all the money they can legitimately, but who would not sell their birthright for a "mess of pottage."

MEAT-INSPECTION.

By S. G. Burkholder, M.D., V.S.,
CHICAGO, ILL.
PROFESSOR OF MEAT-INSPECTION IN THE M'KILLIP VETERINARY COLLEGE.

(Continued from page 13, January, 1900.)

I WILL not take up any more time in discussing these different infectious diseases, with which you are all familiar, but will call your attention to the methods of animal- and meat-inspection at the various stockyards and packing-houses, as conducted by the bureau at the present time.

Both ante-mortem and post-mortem inspection is made of all cattle, sheep and hogs arriving at the various stockyards and packing-houses where Federal inspection is desired.

The ante-mortem inspection is quite thorough, its principal object being to prevent a spread of infectious diseases by animals that are again shipped to the country as feeders and breeders. Those condemned in the yards are tagged and later slaughtered by the permission and under the immediate supervision of inspectors of the bureau, and disposed of accordingly.

Hogs are condemned on ante-mortem inspection for cholera, advanced pregnancy, extensive and suppurating wounds, special tumors and various sporadic febrile diseases. Cholera is the most important.

Sheep are condemned for emaciation, tumors, suppurating wounds, and the various febrile, infectious and parasitic diseases. Sheep-scab is the most important. No sheep, after once entering the yards (at least in Chicago), are allowed to leave again alive, either for export or interstate trade, until they are dipped, whether they show symptoms of scabies or not. This, you can readily appreciate, is a very thorough and wise precaution.

Cattle are condemned on ante-mortem inspection for the same general diseases for which sheep and hogs are condemned, as well as for the various infectious diseases bovine flesh is heir to.

Cattle for export are reinspected, and a record is kept showing from what part of the country each herd came. If there should be an outbreak of some infectious disease among a herd the disease could be immediately traced to its spreading focus and suppressed.

Thus, you see, the ante-mortem inspection at the stockyards is quite thorough and very practical. The post-mortem inspection of the carcasses of the slaughtered animals at the packing-house is equally thorough. Carcasses are condemned for all abnormal conditions which prove to be generalized, presenting lesions that markedly interfere with either nutrition or elimination, and all advancing inflammatory and infectious diseases. Pregnancy is apparently almost entirely overlooked.

The question often arises, Where shall we draw the line, especially in such diseases as cancer, actinomycosis, tuberculosis, etc.?

Regarding cancer we know very little. We know that it exists, and occasionally see very suspicious neoplasms in the various animals. Reports from England show that a large number of their cattle suffer from angry-looking, nodular growths, located near the lips or on the throat of these animals. The malignancy of these growths has not been proven, but they look very suspicious and are at least deserving of an investigation by competent pathologists. Several members of the English Parliament are interested in the subject, and will, no doubt, have the matter brought before that body at an early date.

American cattle are very apt to suffer from angry-looking tumors, apparently originating from the membrana nictatans. These tumors grow very rapidly, involving the surrounding tissues, filling the orbit and finally destroying the eye. This growth presents the histological picture of a true epithelioma, and presents the usual disseminating characteristics. The neighboring lymphatics are invariably involved, showing its progressive and metastatic nature.

It is undoubtedly a true cancerous growth; but the subject has hitherto been neglected, and its positive nature will not be known until some one interested in this line of work shall make a thorough investigation. The material to work on is abundant, and the veterinary profession has no excuse for lagging so far behind its sister profession in the knowledge of the nature and histopathology of many of these pathological conditions found in animals.

The knowledge of the exact causes and nature of cancer in the human being is not yet established. We do, however, know that the number of people who die each year from this disease is enormous and that it increases in prevalence with amazing rapidity. Prof. Roswell Park makes the startling prophecy that if for the next ten years the present relative death-rates are maintained, in 1909 there will be more deaths in the State of New York from cancer than from consumption, smallpox and typhoid fever combined.

How can we account for the lamentable propagation of this malignant monster? Might not cattle, whose products form a large part of our diet, be transmitting agents? This question has thus far received little attention. It is a question, however, that should be thoroughly investigated, and the veterinary and medical professions should coöperate in this matter, and lose no time in probing into the mysteries of the source of this death-dealing agent. Cancer to-day is one of the most fatal, most malignant, and most prevalent diseases among mankind, yet nothing has been accomplished to check its progress.

Regarding actinomycosis and tuberculosis there seems to be a difference of opinion. We know that both are transmissible from one animal to another, and also to man. At any rate, cases of actinomycosis occurring in man are recorded. It is apparently the same disease that we find in cattle, as the fungus is identical.

Dr. Edward Moore, a prominent veterinary surgeon of Albany, N. Y., recently published a long article in the *New York Medical Journal,* claiming that bovine tuberculosis is not transmissible to man, and *vice versa,* and that the bacillus has become so modified by *habitat* as to become specifically distinct. His views are supported by Drs. Theobald Smith, Cooper Curtice and others. This difference of opinion simply proves that our knowledge concerning this disease, or rather its transmission from animals to man, is still somewhat vague, and that a more thorough study is evidently necessary to establish conclusive evidence regarding the intra-specific transmission of tuberculosis between man and cattle.

Accepting, however, the possibility of transmitting both these diseases from animals to man, the question arises, Where should the meat-inspector draw the line? Opinion seems to differ in this respect. It is safe to say, however, that after either one of the above diseases is developed to such a degree that it can be diagnosed with a certainty in the living animal it is very risky to use at least the milk from such animals. They should be immediately killed, carefully inspected by competent inspectors and properly disposed of.

The first thing to be looked for in the post-mortem inspection is the focal or primary lesion. If this can be discovered and the neighboring lymphatics are involved, the specific material has disseminated and the disease might be considered general, although no pathological changes in the remote lymphatics are noticeable. After the infective material once enters the lymphatic circulation, the disease is no longer definitely circumscribed.

It is claimed that fluid amounting to from 3 to 8 per cent. of the body weight flows into and is absorbed from the peritoneal cavity every hour. This fluid is thrown out and again taken up by the lymphatics. This gives us an idea of the immense volume of fluid circulating through the system, and how easy it is for germs to gain access to the lymphatic circulation and be disseminated throughout the system. Some of the germs are caught in the meshes of the lymphatic glands through which the fluid flows and is filtered in its passage to the venous circulation. This, then, is the reason why we first notice the neighboring lymphatics affected whenever there is an extension from a local infection. Some germs escape the lymphatic glands and pass into the venous circulation with the lymph-stream. Either from the hæmic or lymph circulation the germs find their way into various excretory and secretory glands, where they may lodge and form a secondary lesion, be killed by the activity of the gland cells or leucocytes, or be thrown out with the secretions of the gland. Thus we find that pyogenic germs in a septic peritonitis are carried to all parts of the body, and are found in the bile, saliva, milk, and other secretions.

It was formerly supposed and is still held by some that if the mammary glands in tuberculous cattle are free from tubercular deposits, the milk does not contain tubercle bacilli. This we know to be a fallacy. It is a well-known fact that tubercular deposits are seldom if ever found in voluntary muscular tissue, yet it is possible to transmit tuberculosis by inoculating guinea-pigs with the myosin expressed from the muscular tissue of tuberculous cattle. This, then, proves that it is hard to draw a distinct line between a strictly local infection and a more or less general infection.

The local inflammation produced by infective germs is an effort of nature to confine the infective material, in which it sometimes succeeds, thus preventing diffusion and general dissemination. Now, these general principles hold true in all infectious diseases of the domestic animals, and the same rule should apply to all.

Regarding tuberculosis, I consider there is more danger from the use of the milk from infected cattle than from the meat, because meat is usually subjected to the process of cooking before it is used as food, while the milk is so universally used as a food without first boiling it, especially by the sick and infants, in whom the power of resistance is lowered and the destructive influence of the gastric juice is lacking.

The importance of the knowledge of the source of all animal products, a thorough meat-inspection by competent inspectors and the proper disposition of diseased and contaminated products appeals to every intelligent citizen.

In the first part of my paper I have briefly reviewed part of the work that has been accomplished by the Bureau of Animal Industry, which, as you will agree, reflects great credit upon the members of this body. I do not wish to criticise the operations of the bureau, but in my opinion its work in certain lines might be improved.

Every member of the veterinary profession rather painfully appreciates the fact that our knowledge of animal pathology is as yet at a very low ebb. Why is it? It is not due to a lack of material, for in this respect we have rather the advantage of our sister profession. I am of the opinion, however, that this lack of advancement in this most important study is not due to a want of ability and interest on the part of the heads of the bureau, but rather to the lack of funds. The amount of interesting pathological material that goes to waste every year at our stockyards is immense, and can only be appreciated by one who has been in the service. No place in the United States furnishes the same amount of material for pathological research. It is true there is a pathological division in the bureau, operated by competent men, but their force is small, and being located in Washington, D. C., it is impossible for them to do the work justice. What we need is a pathological laboratory right here in Chicago, where material is abundant, and every facility provided for scientific research. Such a procedure would necessarily require an addition to the present amount of appropriation granted to the bureau. This can only be obtained through legislative enactment.

It becomes the duty, then, of all members of the veterinary profession to emphasize the importance of such a procedure to their respective Representatives in Congress, as well as encourage united action by the various veterinary organizations. In this way we can elevate the standard of the veterinary profession equal to that enjoyed by the veterinary profession of the European countries.

I hope that the members of the profession will appreciate the importance of thus endeavoring to improve our knowledge of the nature of animal diseases, thereby enabling us to render better services to the people in the way of protecting them from contracting various diseases from the products of animals as well as preventing the spread of diseases among animals, and the consequent loss of large amounts of money to the stock-raisers.

REPORTS OF CASES.

REPORT OF A CASE OF RABIES.[1]

By S. H. Swain, V.S.,
DECATUR, ILL.

On November 24, 1898, at about 8 P.M., I was called to the livery barn occupied by Thomas Doake, of Decatur, Ill., and on my arrival was informed by Mr. Doake that a horse owned by Michael McGinty, of this city, was sick and probably had colic. I at once proceeded to the stall where the horse was kept, and found a gray gelding lying on the floor, resting on the chest, with front limbs extended as in the act of rising; the horse was steaming; respiration rapid, with dilated nostrils, as though he had been exerting himself vigorously.

I directed Mr. Doake to make the horse rise, in order that I might give him a more thorough examination; a halter was put on him and he was called on to get up, which he endeavored to do, but failed in his posterior extremities. This effort revealed partial paralysis of the lumbar region, and yet the horse had fairly good use of the posterior limbs and tail; I then made a rather incomplete examination, observed the respiration, took the temperature per rectum, etc.; found the temperature 98.5°, and was undecided as to a correct diagnosis, but stated that the symptoms indicated cerebral and nervous derangement, and gave an unfavorable prognosis. I then administered a physic and a dose of nerve sedative.

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[1] Read before the Eleventh Annual Meeting of the Illinois Veterinary Medical and Surgical Association, Decatur, Ill., January 10 and 11, 1900.

I next began an interrogation of Mr. Doake for a history of the case prior to my arrival, and was informed that the horse had been apparently well up to about 2 P.M. of that day, when the owner had driven him out of town a short distance, and was gone about three hours, returning at about 5 P.M., and on ariving home had notified Doake that the horse seemed warm, and that he would like him taken in and cared for at once, which was done, nothing unusual being observed; when the horse was sufficiently cooled out water and food were offered, which he refused. The man in charge at once informed Doake that something was the matter with the horse. Mr. Doake proceeded to investigate, and on arriving at the stall found the horse standing quietly, with head to the feed-box; he was approached from the rear and spoken to, and at this he wheeled around suddenly and made a vicious plunge at Mr. Doake, who stepped to one side, the horse's head and neck being at this time seized with a spasm, so that the mouth was drawn down to the sternum, the horse going down with a thud on the floor, from which he never arose. In the recital of the history of this case Mr. Doake remarked that Mrs. McGinty, the wife of the owner of this horse, had been bitten by a rabid dog which had made his home at the McGinty place, and that Mrs. McGinty had died of rabies about twelve months after she had been bitten. This bit of history, coupled with the symptoms, though I had never seen a rabid horse before this one, left but little doubt as to the case being rabies.

The patient was watched for a time, when he was left for the night, with the injunction by Doake that I be sure to call again early next morning, which I did, and on my arrival found the patient occupying exactly the same position as when I left him the night before. The first thing to attract my attention on this visit was that the horse had eaten every particle of bedding within his reach, and that the bedding was shavings from the planing-mill. Water was now offered him, and he shrank back from it as with disgust. Among the more prominent symptoms was a very hoarse cough, simulating croup, frequently repeated, with an attempt to neigh, as though lost from a companion. This act was also accompanied with a peculiar hoarseness and accomplished with difficulty. The pupils of the eyes were dilated and the eyes bore a very searching expression, as though watching for some object to appear. The nervous derangement was well marked by a rapid motion of the ears and tetanic symptoms of the muscles of the eyes, the left ear and eye being most affected. I might state that these symptoms were much more pronounced on my second visit than at the first.

After a careful observation of the above symptoms, on my second visit a correct diagnosis was easy and positively pronounced, and the owner informed to that effect, when the following additional facts were elicited from him: The horse had been bitten on the lip in October, 1896, by a rabid dog, the same dog having bitten Mrs. McGinty at about the time that he bit the horse. Mrs. McGinty developed the disease, from which she died on October 6, 1897, about one year after being bitten.

The history of this case shows that this most terrible disease had been lurking in the system of this horse for a period of two years and one month, or for a period of about seven hundred and sixty days before it manifested itself.

During my absence in the afternoon of the second day of the attack the horse became very furious, and was destroyed lest he do some harm. One of the peculiarities of this case is that the horse went down immediately after the first symptoms were observed, and was never able to rise again.

PROLAPSUS OF THE UTERUS IN THE BITCH.

By C. S. Gelbert, V.M.D.,
SCRANTON, PA.

PROLAPUS of the vagina is more common than prolapsus of the uterus. In some instances it is accompanied by serious alterations of the vagina, especially hypertrophic alterations, and also, in rare cases, by polypus formations. These alterations are generally caused by difficult whelping. As a rule, there is more or less protrusion of the vagina through the vulva, appearing in the form of pear-shaped or flap-shaped, red, inflamed tissue, covered with mucus. In very rare instances the prolapsus is so great that the os of the uterus can be seen through the external opening. When the uterus is prolapsed the protruded portion is forced out of the vulva, and we see a pear-shaped body, intensely red, with salient borders. *One horn of the uterus is protruded only.*

I was called in to see a bitch on January 24th, which had given birth to six puppies five days before. On examining the animal, which was very much emaciated, I noticed a Y-shaped body (protrusion of both horns) protruding from the vulva, in length about five inches and three inches in circumference. It was much congested and quite firm to pressure; decomposition had set in, and a foul odor was given off. The mammæ were quite dry, and the animal was in a sad plight. Temperature taken per rectum was 102.6° F.; pulse fast and irregular; respirations 12 per minute. I decided that an operation was necessary, but had little hope of saving her life.

Operation. Disinfected the affected organ and its surroundings with a 5 per cent. creolin solution, ligated with a silk thread two and a half inches anterior to the os uteri, to prevent hemorrhage and infection. I then cut through the vagina one inch in front of the os uteri. The scalpel went through a mass of fat surrounding the body of the uterus and then through the ovarian ducts. There was a slight hemorrhage. After thorough antisepsis the stump of the vagina was returned to its natural place. There was some pain when the ligature was applied before the operation, but during the operation the animal did not show the least sign of pain. Gave camphor to stimulate the heart and calomel and sodi bicarbonatis to keep the bowels open. The day after the operation her temperature was 104.2° F., and on the second day she died of septic peritonitis.

CURE OF A CASE OF OPEN-JOINT WHERE FLUID HAD ESCAPED.

By W. T. Campbell, D.V.S.,
CINCINNATI, OHIO.

On November 1st I was called to see a gray mare, which with her mate had run away and collided with an electric car. She was lying down on the street when I saw her, and I at once ordered her hauled to the stable in an ambulance. On examination I found, among other injuries, that she had an ugly lacerated wound on the left knee, penetrating the joint, from which the fluid had escaped. I at once cleaned the wound out with a solution of bichloride of mercury, and made it as aseptic as possible by removing all ragged edges. Following this I drew the edges of the capsule together with a fine needle and thread and covered this over with a coating of aristol and collodion. I then sprinkled the edges of the wound with aristol (powdered) and drew them together and applied another, but heavier, coating of aristol and collodion.

I ordered her kept quiet and applied a splint and a long bandage. After she had quieted down we placed her in a padded sling. On every third day we removed the splint and bandage and gave another coating. We kept her in the sling until she entirely recovered, and on January 1st I found her as well as ever, and she has not shown any lameness since, although she is working in a heavy coal-wagon.

CLINICAL REPORTS.

BY S. J. J. HARGER, V.M.D.,
VETERINARY DEPARTMENT, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA.

CASE I.—Animal, b. g., aged, which I was called to see with Dr. W. H. Mattson, of Chester Heights, Pa.

History. The animal last summer suffered from a mild form of strangles, and seemed to recover. Subsequently was noticed to have difficulty in swallowing; slight discharge from the nose continued, which at times became very profuse, as if from pharyngeal abscess; on one occasion there was some hemorrhage from the nose. The difficulty in swallowing was progressive.

Condition when seen. Extreme emaciation, temperature 102° F., and in the meantime had picked up a nail. Profuse nasal discharge mixed with food, appetite ravenous, but could swallow only a minimum quantity of food and water; regurgitation of food and water through the nostrils; gradual starvation. Subacute traumatic pneumonia of posterior lobe of left lung.

Local conditions. Absence of pain around the throat. The muscular lesions were interesting: the left sterno-maxillaris muscle had almost entirely disappeared, from atrophy. On palpation the left side of the pharyngeal region appeared more hollow than the right; to the fingers the surface and the superior border of the thyroid cartilage of the larynx appeared almost as if this cartilage was subcutaneous, and could be distinctly outlined, showing that the middle and inferior constrictor muscles of the pharynx (thyro-pharyngeus and crico-pharyngeus) were very thin, while on the right side the muscular covering of this cartilage was of normal thickness. Otherwise no external alteration.

The muscular lesion of the pharynx and of the sterno-maxillaris muscle and the intimate relation of the nerves supplying these muscles—the pneumogastric and spinal accessory, both within the cranial cavity and at the base of the skull—led us to conclude that these nerves were implicated, probably by a deep-seated abscess at the base of the brain or in the guttural lymphatic glands.

The nature of the muscular alterations being recognized, and also, considering the duration of the disease, an unfavorable prognosis was unhesitatingly given; the animal was destroyed.

Post-mortem. Made by lamplight under many disadvantages.

The diagnosis of the muscular lesions was verified. All the muscles on the left side of the pharynx, as well as of the larynx, had almost entirely disappeared from atrophy. No lesions along the course of the nerves mentioned, or of any other structure beside the muscles named, could be found; but, judging from the distribution of the nerves and the diseased process in the muscles which they supply, there evidently must have been a central lesion. A fact in corroboration of central pressure on the vagus or the medulla was the slowness and *exceeding shallowness* of the respirations, although the lungs were diseased. Unfortunately, the brain could not then be removed, but we know that abscesses complicating strangles may be found in very unusual places, and it is a question whether there may not have been an intracranial abscess involving the medulla. Such may have been possible, since morbid growths developing slowly may exist in the brain for a long time without producing aggravated symptoms. Inquiry as to brain symptoms elicited nothing excepting that the animal on one occasion had a "dizzy spell," and the owner had some difficulty in returning him to the stable.

Masticated food was found in the larynx, which also caused traumatic pneumonia.

CASE II. SCIATIC (FEMORO-POPLITEAL) NEURECTOMY. Animal, sorrel gelding; lame in the near hind member; had been in this condition when purchased, five weeks ago. Local alterations: Periarthritis of the fetlock articulation, involving all its ligaments; periostitis of the lower end of the cannon-bone and the first and second phalanges; legs much enlarged from the hoof to the middle of the cannon. The lameness was very decided, continuous, and when standing the animal would continually hold up the foot. The inflammatory symptoms were of a chronic type. The parts had been blistered without improvement.

The value of the animal and the time required militated against the use of the actual cautery, and resection of the sciatic nerve above the point of the back was decided upon. The operation need not be described here, but, it may be repeated, can be successfully employed in cases in which firing is not an economic procedure. Experience has shown that in such cases resection of the sciatic nerve is a satisfactory method of treatment in such cases, and after this operation horses have for a long time done work of various kinds. After the operation the animal went practically sound.

CASE III. (Same operation as Case II.) Animal, b. g., had been lame since last spring and treated with rest and blistering, and was unable to do any work.

Symptoms. Extreme lameness; thickening and induration in the off hind leg of the perforatus and the perforans and its check ligament, which were much contracted. Walking on the toe, unable to place the heel on the ground to within four inches, and the wall at the toe was inclined upward and forward in walking—an aggravated condition identical with that so frequently seen in mules.

Tenotomy was considered too expensive and requiring too long a time to recover. Sciatic neurectomy was decided upon, and a toe-box shoe with high heels applied. The heels immediately afterward were lowered nearer to the ground. After three weeks an ordinary shoe was applied, the heels gradually touched the ground, and at the end of about five weeks he walked and trotted normally, and was able to work. The merest trifle of lameness remained, which there is fair reason to believe will ultimately disappear.

We frequently see cases to which such treatment may be applicable.

CASE IV. RESECTION OF THE SPINAL ACCESSORY NERVE FOR CRIBBING AND ROARING. In communicating with Dr. H. D. Fennimore, of Knoxville, Tenn., on the subject of cribbing I have come into possession of a few very interesting facts which demonstrate that the same operative means that cured the animal from cribbing also entirely relieved him from roaring. I shall not appropriate the doctor's work to my own personal advantage, but knowing that it would be of interest to veterinarians, and fearing that it might remain unpublished, and perhaps may lead to more important results, I shall apologize to him for summarizing as follows:

Animal, b. g., mark of 2.22, ten years old. The animal was an inveterate cribber as well as a decided roarer. The spinal accessory nerve on both sides was resected in the usual manner, with a view of relieving the cribbing, without taking into consideration the respiratory trouble. The result was that the operation not only cured the horse from cribbing, but also from roaring, and " made a very valuable horse of him."

A second case was a valuable bay gelding. A diagnosis of roaring was not thoroughly established, but the symptoms, as far as I can conclude, pointed toward that trouble. The day following that of the operation the horse was taken for a severe drive, and was found to be very much improved. Since that day I have no data as to the result, which, of course, is incomplete.

Such a result it is difficult to interpret anatomically and pathologically. There is no direct relation between the spinal accessory nerve and the lesions of roaring. The only possible effect which the sterno-maxillaris muscle can have upon obstructing the respirations may consist in excessive flexion of the head upon the neck in "drawing in the chin," but even this circumstance is not sufficient to produce symptoms of confirmed roaring, and consequently paralysis of this muscle from resection of its motor nerve-supply would not remove this obstruction to the respiration. To say the least, this is a remarkable coincidence. However, the first opportunity should be seized to experiment with such a simple means of treatment.

CASE V. SPURIOUS RABIES. The animal was an English setter dog, with a history that four days before he had been washed with Good's dog soap, which had poisoned him. When first seen he presented all the symptoms usually observed in dumb rabies. He showed that peculiar, miserable-looking expression of the eyes, dropping of the lower jaw, and salivation; at times he would gnaw at the chain to which he was tied; extreme general weakness was marked, and he supported himself against a fence to which he was tied.

In view of suspected rabies, no treatment was prescribed, and a natural termination was awaited. The animal gradually improved, and in four days was well.

The nature of the disease evidently is obscure. That the soap has been the cause is doubtful; it had been repeatedly used on this dog before. The rapid recovery precludes rabies. This is the first case among a great many presenting this train of symptoms that has recovered, and teaches us not to be too hasty in expressing a radical prognosis in such cases without experimental means of confirming the diagnosis, although in similar cases the termination has invariably been fatal. Again, relative to rabies, I have in such cases received reliable histories that precluded any reasonable chance of contact with other dogs; but, nevertheless, experimental inoculation of rabbits confirmed the diagnosis, and absence of association with other dogs should not deserve too much credence. Perhaps we still have to learn unknown conditions of the modes of infection with rabies.

EDITORIALS.

NEW JERSEY'S TRIUMPH.

VETERINARY annals will record for this State one of the most remarkable gatherings ever witnessed in the history of veterinary medicine.

In one day the successful and complete amalgamation of three State societies in one; the addition of more than fifty new members at one meeting of a State society!

The surrender of two State charters and seals and the union of as strong a body of veterinarians as in any State of our Union.

The gathering together at Newark of the largest body of veterinarians that had ever assembled at one time in New Jersey.

The presence of strong veterinary representations from every section of the State.

The setting sun of the incorporation of any other State organizations by legislative action.

Such are a few of the features of this triumphant day in New Jersey, and long will it be remembered by those whose pleasure it was to be there.

This inspiring array of factional lines, this termination of fruitless efforts for supremacy has ceased, and in its stead there rises up one of the strongest bodies in any of our States. Those who gained their education in the days when schools were unknown, when only the lamp of experience burned to light the way along the darkened passages of veterinary science; those more favored in later years by college advantages, and the training of those skilled in teaching, met together to join hands in placing New Jersey in the roll of States where the profession is to lead in all that is for the welfare of the calling.

Association work will feel its valued impulse, college advancement will appreciate its encouragement, State sanitary work will be more wisely directed. The individual worth of every veterinarian will be enhanced in every community where he may reside.

The citizens and tax-payers will have burdens lightened and the people better protection from the allied diseases that wipe away the dividing lines of human and comparative pathology.

We cannot refrain from extolling in the highest the grand part in this work done by our colleague, Dr. William Herbert Lowe, of Paterson, N. J., treasurer of the American Veterinary Medical Association. Early and late, at a great expense of time and money, he covered the entire State in person and by letter, appealing to his colleagues to join him in this good movement, and when its results are fully known and appreciated there will be a united vote of thanks go out to him from every section of that State, and the good wishes and full measure of appreciation by the profession throughout America.

All success to the work of this day of days in State association work.

MICHIGAN'S PERIL.

On another page in this issue will be found a defence of the State veterinary law of Michigan and an answer to an editorial comment appearing in the Journal.

What those who are most familiar with legislative action in behalf of the profession have learned to fear has more than come to pass in Michigan.

The law not only encourages the maintenance of two-year colleges, but makes the way easy for future enterprises in this direction. We say enterprises, because we know that many of our private veterinary institutions are simply one-man schools, and are used to enhance the personal interests of a single individual. These schools cannot advance save by and through the consent of their owner or promoter. They must be made self-supporting, as private enterprises are not endowed, as a rule, and are not in a position to command national, State, or municipal aid or support. This practical question of sustenance must be met, and there are many times when it is done at great peril to the integrity of the college.

Such laws solve but few of the ends desired, and if, as in Michigan, they become fire-brands in the profession, setting up a prairie-fire-like conflagration, destroying the unity, harmony, and worth of the profession, better would it have been had such a law never been enacted. Its experience in angry litigation, its threats and demands of the profession are already so discordant as to never again harmonize, and the wounds and sores left after but a few months' existence are not likely to heal while the present generation lives. The broken ranks, the bitter invectives used, and the personal animosities engendered will live for many years, and no act that will add one iota of strength to the profession is yet visible as the result of Michigan's legislative effort. Such are the painful lessons learned, and, while it is only history repeating itself, it seems strange that what has been learned in other States from like bitter experiences was not a warning to others. We sincerely trust that the fire now burning so furiously in Michigan may burnish her escutcheon so bright and free it from the stains and tarnishes that she will prove the safety gate of experience to her sister States. The American Veterinary Medical Association can do much in aiding our colleagues in their dilemma, and every effort should be made to accomplish this much-to-be-desired end.

IOWA'S NEED.

THE bill to regulate the practice of veterinary science in Iowa has passed the lower branch of the legislature by an overwhelming majority, and is now in the Senate. It will need in the upper body the strong arm of support of every active veterinarian in the State. Its provisions are liberal, its demands conservative, and its promises salutary to the best interests of the people of that State, and a safeguard in the future to much saving to the people —a properly educated body of veterinarians. It should have gone farther in encouragement of the State University's Veterinary Department by designating a definite time when all future graduates shall have complied with the advanced curriculum of to-day in most all of our veterinary colleges and that laid down by the American Veterinary Association, as the standard of requirements for her members. Iowa needs such a law, the profession will advance more rapidly under its fostering care, and its successful placing on the statutes will depend much upon a united support and energetic action upon the part of the profession.

COMMUNICATION.

EDITOR OF THE JOURNAL OF COMPARATIVE MEDICINE, ETC.

DEAR SIR: IN a number of the JOURNAL appeared the following question: "Why does not someone in Michigan stand up and defend the new veterinary law in that State from the open attacks made upon it by members of the profession in that Commonwealth?"

Perchance, as President of the Michigan Veterinary Medical

Association, it properly falls to my lot to make reply to this query, which I will endeavor to do as briefly as possible.

I am not aware of any open attacks having been made on our veterinary act by any recognized members of the profession in Michigan.

This simple statement might suffice, but it may not be out of place to call attention to the probable cause of the above question appearing in the JOURNAL.

In another number appears an editorial on Michigan's veterinary act. The editor criticises the bill somewhat severely. It is not my purpose to defend the bill. It does not require very close inspection to see that it might be improved, particularly from a veterinarian's point of view. But are there not "others?" Let me quote from an article in the JOURNAL: "Those who have fought the legislative battles, national and State, have learned the one bad fact, that the entering wedge of legislation on any new lines is the most difficult to obtain, and only gained after the hardest and most conscientious work. Its after-amendment and correction are yielded readily compared with the difficulties encountered at every step of new legislation. In these modern times the pitfalls of any proposed legislative measures are so numerous that only those who have directed those battles and tented or lived on the legislative field can foresee them."

The veterinarians in Michigan who have sought legislation have found this only too true, but hope that the act they have succeeded in making a law, if only an entering wedge, may pave the way to after-amendment and correction.

One of the several pit-falls that has confronted our committees on legislation is a certain garrulous individual hailing from Grand Rapids, and apparently the writer of a communication which appeared in a back number of the JOURNAL over the signature of the Grand Rapids Veterinary College. A perusal of the article would seem to be all that is necessary to condemn the writer as being what he is, not only a quack, but a chief among quacks, whose quacking might well make the duck family turn green with envy. Like too many people who cannot resist the wiles of a street fakir, but fall victims to their glibness, the average legislator is prone to listen to the vaporings of such characters as the one appearing under the pseudonym of the Grand Rapids Veterinary College.

Not being a member of the Committee on Legislation, I cannot speak from personal knowledge, but I am informed by the committee who had the bill in charge that said bill passed the lower house containing a provision requiring colleges that were to be recognized to come up to the standard of the American Veterinary Medical Association, and when the bill reached the Senate the now dean of the Grand Rapids Veterinary College made such strong objections to that provision that the committee, in order to not sacrifice the measure entirely, agreed to an amendment which makes the bill as it now appears.

The writer of the editorial in the May number of the JOURNAL perhaps, not being aware of these facts, would make the criticism appear more just. I could write much more along this line, but I promised to be brief, and may have trespassed too much now on your valuable space. If any of my points are not well taken I am open to correction, but request that I may be excused from replying to effusions emanating from the Grand Rapids mill.

Respectfully yours,
WM. JOPLING, V.S.

NOTES.

In a call for the establishment of a State Breeders' Association in Pennsylvania the committee issuing the call state, among other facts, that Pennsylvania breeders need a good many things which a strong State organization will help them to secure. They need to learn more about each other and more about their business interests. They need better and cheaper shipping facilities for pure-bred stock. They need better classification of stock at fairs, better premiums, and better judging. And they need a State Fair that will properly represent and encourage the live-stock industry. We note on the first programme a paper by State Veterinarian Pearson on "Sanitary Barns," surely a subject of the deepest and most important interest to the breeders.

The JOURNAL is in receipt of a photographic reproduction of an "osteoma," weighing fifteen pounds and three-quarter ounces, twenty-two inches in circumference, eight inches in diameter, with covering of only one inch thickness, removed from the popliteal region of a six-year-old mare on November 21, 1899, by Dr. Alexander Crowforth, of Lockport, N. Y. This growth was the result of an injury occurring some seven months prior to operative procedure.

Several of Philadelphia's milkmen now announce on their cards and letter-heads the names of the veterinarians who fill the rôle of inspector of the herds that supply their dairies with milk.

Farmers' Bulletin No. 708, issued by the United States Department of Agriculture, is one of many that affords valuable information to the farmer. In describing the various salt-bushes and the non-productive soil on which they will grow it also treats of their value as food for the horse, cow, sheep, and other animals. The scope of work done by this department in the general interest of the great body of our people engaged in agriculture is a continued source of wonder.

Bulletin No. 61 of the West Virginia Agricultural Experiment Station is an an interesting contribution to successful sheep feeding. The tables are complete in details of the manner in which the experiments were conducted.

Veterinarian John Wende reports the prevalence of rabies in and around Buffalo since November, 1898, causing the loss of many horses, cattle, one deer at the Park Zoo, hogs, dogs, cats, and at least four cases of hydrophobia among members of the human family. An ordinance, to take effect February 26, 1900, requiring all dogs on the street to be led by a leash, has been passed by Buffalo City Councils.

The Governor of Texas recently announced quarantine measures against Colorado and some other Western States, on the grounds that tuberculosis was existing among their cattle, and the live-stock interests of the "Lone Star State" were endangered.

Two thousand and seventy-two entries were made at the Westminster Kennel Club Show in New York in February.

Acton, England, has a "Home of Rest" for horses of cabmen, grocers, etc., maintained by the charitably disposed members of society, where the best of care, medical treatment, etc., are given.

Dr. George M. Walrod, of Storm Lake, Iowa, states that glanders exists in Buena Vista County, Iowa. State Veterinarian Gibson and his assistant, Dr. Hammond, have already destroyed some thirty-four horses. The disease seems to have been introduced through the movement of horses incidental to construction of a railroad through that territory.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

(Continued from page 59.)

Under the head of new business, Dr. Pearson presented a resolution on the death of Dr. John J. Smith, of Chambersburg, Pa., as follows:

Whereas, Our late fellow-member, Dr. John J. Smith, of Chambersburg, died on September 8, 1899, of anthrax contracted during the performance of his duty as a veterinarian; be it

Resolved, That this Association hereby expresses its sense of loss and grief upon the death of our late esteeemed colleague, and testifies to its appreciation of his heroic efforts to suppress the scourge that led to his death; be it further

Resolved, That these resolutions shall be spread on the minutes and that a copy shall be sent to the bereaved family.

Dr. Hoskins commented upon the character of Dr. Smith and showed the esteem in which he was held by the community in which he lived and labored as well as by his colleagues.

On motion by Dr. Rhoads it was unanimously decided to consider Dr. Smith a member of the Association when he died, although technically he was not, having allowed himself to be in arrears, on account of which his name had been placed among others on the list of members expelled.

On motion of Dr. Thomas B. Rayner, seconded by James B. Rayner, Dr. Pearson's resolution was adopted.

Dr. W. Horace Hoskins introduced a resolution as follows:

Whereas, The work of our State Livestock Sanitary Board has already attracted the favorable attention of many States and other countries, many of said States planning to follow the conservative and well resulting measures adopted by our State; and

Whereas, The successful results in dealing with the many serious problems covering the many infectious and contagious diseases occurring throughout our Commonwealth are largely to be attributed to the efficiency and wisdom of our fellow-member and State Veterinarian, Leonard Pearson; and

Whereas, His term of four years now about expiring finds us in our Commonwealth with well defined plans, with the united support of the people of our State, backed by an unbroken front of the profession in confidence of the safe direction of these all-important affairs; be it

Resolved, That we cordially indorse the work of our fellow-member, State Veterinarian Pearson, and recommend strongly his reappointment to our Governor, William A. Stone.

Moved by W. Horace Hoskins, seconded by Thomas B. Rayner. The resolution was adopted.

Dr. Rhoads brought before the Association the question of a relief fund for the wives and children of veterinarians who have lost their means of support. He asked for the views of the members upon the subject. Dr. Hoskins moved that the Chair appoint a committee of five to consider this important matter, in view of instituting a plan similar to the one in vogue in England. The motion was seconded by Dr. Rhoads. Dr. Pearson suggested that the committee hold the matter under consideration for at least six months, since it was an important question. Dr. Pearson held that an association such as the Relief and Protective Association of England would be useful in more than merely providing for the relief of indigent children, and cited the Hewson case in evidence, in which an important client was unjustly prosecuted by the S. P. C. A., but protected and cleared by the Relief and Protective Association. Dr. Hoskins's motion was carried.

Dr. Rhoads moved that the Chair between now and the next meeting appoint a committee to care for the records, paper, etc., that belong to the Association. An amendment to this motion was made by Dr. Hoskins, that the Corresponding Secretary put this subject in shape and present the same at the spring session, since the matter involved the creation of a new office. The motion with its amendment was carried.

The literary programme consisted of a series of interesting and instructive papers.

The first, entitled "A Veterinarian's Daily Observations," by Dr. Walker S. Phillips, was, in the doctor's absence, read by the Corresponding Secretary. The latter also read Dr. J. S. Butterfield's paper on "Œstris Ovis," and that of Dr. J. J. Repp on "Meat-inspection in Small Towns." Dr. D. C. Stanton, of Factoryville, talked on the subject of "Cattle," confining his remarks principally to contagious abortion and tuberculosis. Dr. Helmer read a paper entitled "Ethics of Consultation," and was followed by Dr. Pearson on "The Worth of the State Livestock Sanitary Board." Dr. John W. Adams spoke at length and forcibly upon the subject of "Meat-inspection."

Dr. Pearson offered a resolution on the death of Dr. Isaiah Michener, which was unanimously adopted. Dr. Hoskins offered a resolution as follows, which was unanimously adopted:

Whereas, The question of meat-inspection is now one of the daily problems confronting national, State, and municipal governments, and demanding a proper solution at the hands of those charged with the direction of public affairs in the care and protection of our people from the dangers that lie therein; and

Whereas, The creation of these positions is fraught with the danger that imperfectly educated and unfit persons seek and obtain positions of municipal meat-inspectors, thus robbing the people of the good that should flow therefrom; therefore, we earnestly commend the application of the civil service of our Federal Government in the selection of these officials; and

Whereas, The now conceded need of this protection in every city and borough of our State, and the fact that it would impose no hardships from a monetary point of view in increased taxation upon its people, as a tax of less than one cent per week to each inhabitant will provide for its maintenance in every city and borough, and in large cities can be made, through municipal abattoirs, a revenue-producing source as well as a saving factor to those engaged in the occupation of preparing meat foods for the people; be it

Resolved, That we earnestly commend this matter to the thoughtful consideration of city and borough officials and the public throughout our entire State.

Dr. Rhoads suggested that the Board of Censors, between now and the next meeting, consider the advisability of regarding members who have moved to other States as associate members, and that as such said members be exempt from the payment of the usual fees of regular members.

Dr. Hoskins thought the semi-annual sessions were not receiving the attention they should from the members. In the first place members failed to attend these sessions because there did not seem to be a sufficient object, but the doctor thought that the autumn meeting should be made a great object. It was the superior recruiting field. It brought the Association in contact with various local sections in the State, thus advertising and elevating the profession through the local press and through its influence directly upon members of the community. It afforded opportunity for profitable work for the attending members if advantage was taken of the opportunity. Dr. Hoskins was inclined to think that the autumn sessions were subordinated to the annual spring session in Philadelphia, which in that sense was an injury to the development of the fall session. Also, that too much time was given to recreation and entertainment, which was a serious hinderance to the success of the autumn session. The subject was discussed further by a number of the members present.

Dr. Rhoads called for a report from the Auditing Committee. Dr. Hoskins replied, asking the Association to receive the report as progressing. The amount due the Association is still a question. The completed report will be presented at the next meeting. He suggested providing the Treasurer with a book which should be a book of record.

On motion by Dr. Hoskins a vote of thanks was extended to Mrs. Helmer for her effort to entertain and provide the members each with a photograph which would always suggest the pleasant things of the autumn session in Scranton. Also, that a vote of thanks be extended to Mr. E. E. Loomis for the privilege of members to visit the interior of one of the coal mines. A vote of thanks was heartily extended to the local committees for their efforts to render the occasion a pleasant and profitable one.

Here a motion to adjourn prevailed, and the members departed.

In the evening a number of the gentlemen availed themselves of the opportunity to visit the mines.

The only drawback to a happy as well as a successful day was the rain which fell so abundantly.

J. CURTIS MICHENER,
President.

JACOB HELMER,
Secretary pro tem.

ONTARIO VETERINARY ASSOCIATION.

THE annual meeting was held in the Veterinary College, Toronto, Canada, on Friday, December 22, 1899. The meeting was opened at 11.15 A.M. In the absence of Mr. S. Sisson, the President, the First Vice-President, Mr. W. J. Wilson, of London, took the chair, and after a few well-chosen remarks he called for the reading of the minutes of the last meeting, which were read and confirmed. New members were then proposed and accepted, and some routine business was transacted. The meeting then adjourned for lunch.

On opening the meeting after lunch the chairman called as the first order of business for the Secretary's, Treasurer's, and Registrar's reports. A very large mass of correspondence was reported, among the most important being numerous letters from all over the province of Ontario relating to measures that were being adopted for endeavoring to procure better legal protection for our profession. Also correspondence relating to the prosecution and conviction of one T. Johnson for illegally advertising and practising as a veterinary surgeon. He also reported fourteen graduates having registered since the last annual meeting. The Auditor's report showed the finances to be in a good condition.

The report of the committee appointed in connection with the efforts made in endeavoring to procure better legal protection for our profession was discussed, and it was shown that, notwithstanding a clause was inserted providing that all persons who had been practising veterinary surgery continuously in one place for fifteen years should be entitled to register, when it came before the Legal Committee for discussion it was found that a majority of that committee were opposed to the bill. The chairman of that committee, the Hon. J. M. Gibson, suggested that in consequence of the rather serious opposition the bill be withdrawn for this year, and if thought advisable introduced again at the next session of the Legislature when he thought it would likely be carried. After considerable discussion it was resolved that the bill should be left in the hands of Mr. German, M. P., to endeavor to carry it at the coming session of the Legislature, and that the old committee, consisting of Professor A. Smith, Mr. C. Elliott, Mr. Hutton, and the Secretary should be empowered to act in endeavoring to get it passed.

The Secretary read a letter from Mr. Giffen, V.S., Secretary of the Michigan State Veterinary Medical Association, giving a most cordial invitation to the members of the Ontario Veterinary Association to join with the Ohio and Michigan Associations in holding a joint meeting in Detroit, Mich., on September 5th next. All the members were requested to attend, and the Secretary was instructed to acknowledge the receipt of Mr. Giffen's cordial invitation.

The Secretary was instructed to send a letter of sympathy and condolence to the widow and family of the late Mr. J. H. Wilson, V.S., an old and valued member of this Association, in the loss they have sustained by the death of our much esteemed and respected confrere.

The Chairman then called on any members present to describe any cases of special interest which they have recently met with in their respective practices.

Mr. John Wende, V.S., of Buffalo, in response, described an outbreak of rabies which was quite extensive about Buffalo and the surrounding country, dogs, horses, cattle, and hogs having been affected. He said that 75 per cent. of the dogs had the disease in what was called the dumb form. He gave an interesting account of his inoculation experiments. He also said that there was no law in his locality to compel the quarantine of dogs.

Mr. J. H. Tennant, V.S., of London, gave an interesting account of his results in adopting Schmidt's treatment for parturient apoplexy. The treatment was surprisingly successful.

Mr. W. J. Wilson, V.S., of London, spoke of the good results he had seen in the treatment of deep-seated fibrous tumors by injecting into the tumors with a hypodermatic syringe a mixture of hydrochloric acid and pepsin.

Mr. John Wende exhibited an ingenious tube through which to insert the catheter in the cow.

All these subjects were extremely interesting, and many instructive remarks were elicited during the discussions that ensued.

It was resolved that the sum of twenty-five dollars be appropriated for a medal to be competed for by the graduating class at the next spring examinations.

The following officers were elected for the ensuing year: President, Mr. W. J. Wilson; First Vice-President, Mr. H. S. Wende; Second Vice-President, Mr. J. H. Tennant; Secretary and Treasurer, Mr. C. H. Sweetapple. Directors: Messrs. D. H. McMurtry, J. H. George, W. Steele, J. Wagner, W. Lawson, F. G. Hutton, W. Shillinglaw, and F. J. Gallanough. Auditors: Messrs. C. Elliott and J. D. O'Neal. Delegates to the Industrial Fair Association, Toronto: Professor A. Smith and Mr. W. J. Wilson. Delegates to the Western Fair Association, London: Messrs. J. D. O'Neal and J. H. Tennant.

C. H. SWEETAPPLE,
Secretary.

MISSOURI VALLEY VETERINARY ASSOCIATION.

THE twenty-second regular meeting of the Missouri Valley Veterinary Association was held in the parlors of the Hotel Donovan, South St. Joseph, Mo., on the evening of December 11, 1899, at 7.30 P.M., with the following officers and members present: Dr. Forbes (President), Stewart, Moore, Washburn, Sloan, Netherton, Wright, Patterson, and Ross Cooper, with Drs. Blackwell, Wilson, Steele, Goode, of St. Joseph, and A. T. Peters, from Lincoln, Nebraska, as visitors.

A varied and very interesting surgical clinic was held on the afternoon of the same day, from 2 to 5 o'clock, in the hospital of Dr. E. J. Netherton, St. Joseph, Mo., under the direction of Drs. Netherton and Patterson.

Routine business having been disposed of, the President called upon Dr. Netherton, who read a paper on "Municipal Milk and Meat-inspection." (See p. 71.)

In the absence of Dr. Thackaberry, the discussion which followed the reading of the paper was led by Dr. S. Stewart, of Kansas City, as follows:

Dr. Stewart: I had not expected to enter very much into the discussion of this subject, and have not noted it as closely as I should have done. I wish to say, however, that I was quite interested in the paper, and think such papers should be placed before the public as frequently as possible, so that it may be fully and correctly informed, and be guided accordingly. Most of our veterinary papers that are prepared for veterinary societies are not very well adapted for presentation in the public press. They are much inclined to be too technical, too scientific. This paper, in my judgment, would serve a most excellent purpose if published in the daily press of this city, and I do not doubt but that it would receive considerable publicity by quotation. The statements contained therein are unquestionably in line with papers that have been presented heretofore, and I trust that the Society will see to it that the paper receives that publication which will put it into the hands of those who need to be informed upon such topics.

There is a theory extant that the veterinarian should not so frame his thoughts that they serve as alarmist articles; that he should be cautious; that it is unfair and unjust to the public to spread abroad alarmist articles; that they disquiet the comfort of the home; that mothers and fathers become anxious and do not appreciate the substance upon which they must live. But some alarming statements must be placed before them or they will not awaken to their danger. I know of no way of awakening their latent understanding without it is done somewhat rudely; so many things press for attention that it is only those things that arouse curiosity or that appeal to their fear for their personal safety, personal vanity, or some other powerful sentiment, which are likely to awaken any interest whatever, and such articles as these will serve a good purpose, even though there be some here and there who may be seriously disquieted by the discovery that such things are possible. The public press teems with articles upon impurities in other things beside meat and milk, and the public is becoming awakened to the necessity for the inspection of all kinds of food.

I note that the paper fixes the salary at $1600. Now that is a fair salary, and certainly would attract capable men to take up the work. It is not usually the case, however, that municipal bodies fix so large a salary as that to begin with, but even though the salary provided by any ordinance that might be passed should seemingly be meagre, I believe it would justify a local veterinarian who has other means of livelihood in accepting such an office, and if by his ability he can demonstrate his usefulness there is little doubt but that within a reasonably short time the municipality would raise the salary to an adequate sum. Some men say if they cannot get a substantial salary they will not accept a sanitary office of that kind, thinking it is demeaning to their special qualifications, but experience should teach such that it is not customary in any city for a newly-created office along sanitary lines to be very well paid, especially in States where it is just being inaugurated. They should be content with a meagre salary, and should also be content, if appointed, with accomplishing apparently small results, gradually extending their influence and the value of their office. The public is likely to be offended with sudden onsets of officialism in any direction, and soon rebel and dispose of it entirely. There are, therefore, two sides to the question, and the conservative one, it seems to me, should prevail. I hope the paper will receive the publication to which I have alluded.

Dr. Wilson: I would like to ask the author of this paper, which he thinks is the more likely to produce the typhoid fever, diphtheria, etc., to which he referred—tuberculosis or the uncleanliness of which he spoke?

Dr. Netherton: Well, I think scarlet fever and diphtheria are more frequently contracted as a result of the impurities in the water and the adulteration, than the tubercular trouble.

Dr. Peters: I was interested in Dr. Netherton's paper, and I hold the same views that Dr. Stewart does. At the Iowa-Nebraska meeting Dr. Ramacciotti gave a very excellent talk on this subject. He gave the history of milk-inspection in Omaha, and throughout his talk you could see how he accustomed the municipality to the inspection. He did not achieve his object by the method of the alarmist; but with sound, convincing argument he accomplished a great many things. He admitted that the system was by no means perfect, but stated that he was in hopes of having passed a new ordinance which he had framed and which he believed would improve the service. Now, I am a firm believer in that way of doing things. The veterinarians of Lincoln have long felt that they should do something. They looked to the experiment station to take the initiatory step. The men engaged in the practice there had frequent consultations with the experiment station authorities, and we also had consultation with the city authorities, and we found that the time was not ripe, but the small corps of veterinarians there kept up their little fight on the quiet, and lately we have received invitations to talk to the City Improvement Society, which is composed of ladies. Before that body I had the pleasure of talking in a popular way regarding the cleanliness of the city, proper sanitary precautions, and incidentally touched upon the question of the inspection of milk. I told them of the number of cases of diseased cows the veterinarians had found, and how powerless they were, and it seems that this organization is going to do far more than we ever dreamed of. We were always accused by the politicians of looking for a job, especially during the hard times, that horses were cheap, and we had to look for other fields of labor. I just throw out this suggestion that if you have such a society here, try and secure an invitation to give them a popular talk, and you will not be sorry.

Apropos of Dr. Netherton's reply to Dr. Wilson, I wish to say that I do not believe the typhoid, diphtheria, or tubercular germs are conveyed to the milk so much by adulteration as by the use of improperly cleansed vessels and the existence of unsanitary conditions around the dairy.

Dr. Netherton: I desire to say further that I have been treating cattle in several of the dairies around this city, and in one case which I recall I was called to see a cow which had calved, I think, two weeks before. She still had retention of the placenta, and they were saving the milk of that cow. There was such an odor from the animal that it was difficult to stay in the stall where she was. They had a well within ten feet of the stable. They have two hundred cows in the stable, and it was at this well that they washed their milk vessels. I saw them do that, and in all probability the water which was used to adulterate the milk was obtained from that same well. Last year was a very hard year on the dairymen in this city as well as others. The cows were not calving, the milk supply was short, and the fact of adulteration was not denied, but if they used that water to adulterate their milk certainly everything was favorable to the propagation of the germs of disease and their dissemination among the consumers of milk.

Dr. Moore: I do not know that I can add anything to what has been said in regard to this paper. I certainly appreciate it very much, and agree with the doctor fully in his statements. I think that ofttimes milk becomes contaminated, even though fairly good sanitary conditions prevail in the dairy, and care is bestowed upon the cans. The cooling-boxes are often sufficiently contaminated, and scarlet fever or typhoid fever may exist in the family, and the milk may become contaminated in that way. I do not think we could very well say anything to unnecessarily alarm the public. Of course, it might cause some people to say we are alarmists, but to me the matter is so important and covers so much territory, is so essential to the welfare of the people, that it would be hard to say anything that would alarm the people beyond what they should be alarmed. But whether it would not be policy to go a little slow might be a question.

So far as the necessity for publishing or getting before the people this class of scientific literature is concerned, I think that cannot be too greatly emphasized. I have felt for a long time that our efforts as veterinarians were confined too much to preparing papers for the veterinarian, for the scientific, educated men, and not enough for the masses, and it seems to me that it would be a good thing if at every meeting we had at least one paper devoted to matters of vital interest to the people, prepared in such a way that it would be acceptable to the press, especially the local press in the sections of the country where the meetings are held. If we could reach the people through that source it would benefit both the people generally and the veterinary profession.

Dr. Sloan: I had hoped that the writer of this paper would give us a practical solution of this question of milk inspection. I have seen a little of that tried in different places, and it is just as well that we note the mistakes of others in order not to fall into the same ruts ourselves. For instance, in San Francisco they have a milk inspector. He went about the city collecting samples of milk from the dairymen, and from his report the city undertook to enforce the testing of the milk from the different dairies. As a consequence the city has a number of law suits on its hands, the dairymen having combined to oppose the testing ordinance, and at the last accounts I had the matter was still in the courts. In Chicago the veterinary society proposed that the city take up the matter and enforce the testing of all the dairy cows in the city every three months. The mistake they made there was in giving the public the idea that it was necessary to test the cows every three months. If they had fixed the time at six months or a year they might possibly have accomplished their object. The frequency of the inspection fostered the opposition of the people to the scheme, however, and it was not popular for that reason. However, the matter was well stirred up, and in that way some good no doubt was accomplished, as it is necessary, it seems to me, to agitate these matters in order to educate the people to a sense of what is due them.

I think it would be a good thing to bring the matter before the physicians of the city, and an expression from them would probably have more weight than a recommendation from associations of this kind. If an effort is made to secure municipal inspection in the city of St. Joseph I would suggest that the city Board of Health be approached in the matter, and try and secure their co-operation.

Dr. Netherton: During this last spring I circulated a petition among the physicians, and each one of them signed it. It was addressed to the Mayor and the city Board of Health, asking that an inspector be appointed, a veterinary graduate. I think there were something like seventy-five signatures of physicians and that of quite as many laymen. It was referred to the Board of Health and was pigeon-holed. They did not seem to take any interest in it. They had a food inspector in this city up to last year, a layman who never did anything, and the office was abolished. This fact was alleged as a reason for their failure to act upon the petition which I presented. However, I think that in the coming spring, if we have the co-operation of the physicians and the Board of Health, we will have inspection established again, and it would be much easier if we could get this on a fee system. I do not know of a precedent for such a system, but lack of funds for such a purpose was urged by even those who were favorable to the propositon. But as I have already said, I think if the matter is agitated until the end of the fiscal year we can get some money appropriated and have the office re-established next spring.

Dr. Cooper: The only case I recall now regarding public sentiment relative to milk-inspection occurred in Iowa the past summer. Almost every town in that particular section has from one to three creameries, and some one had made complaint about a man having tuberculous cows who was selling milk to one of the creameries. It was found upon investigation that the man had two or three cows affected with tuberculosis. He told the inspector that another man a short distance from there who was milking from fifty to one hundred cows had a bad herd. This herd was examined, and thirty cows were condemned. The water was furnished by a spring surrounded by hills, and around this was his pasture, and in rainy weather the wash from the hills was mingled with the water of the spring. In the winter his stables are crowded very full, and are not very clean. Not long after the quarantine had been established a local clergyman wrote a letter to the State inspector asking him to lift the quarantine of the rich man's cows, but saying nothing of the other man. The owner of the cows was quite wealthy, and the clergyman's influence would outweigh that of any half-dozen physicians or veterinarians you could get together. Where you have such interference as that it of course takes some little time to control public sentiment or enlighten them as to the actual facts in the case.

Dr. Forbes: Before closing the discussion I would like to emphasize some of the remarks made by several of the participants in this discussion as to the necessity of getting before the public the need for a thorough and competent meat-inspection and milk-inspection. I think, also, that the suggestion of some members as to going a little slow should be considered. We should be content with a very small thing at first, and wait until the public has been educated to it before pushing the matter to any great extent. I think by so doing we will arrive at better results. The remark made by Dr. Cooper as to supplying tuberculous milk to creameries suggests two or three cases of which I read in a journal the other day, of which I made extracts, and as this feature of the subject had not been treated of in former papers to which I have listened at the meetings of this Association, I thought it would interest the members:

Rabinowitch and Kemper inaugurated experiments to discover if the milk of cows that had reacted to the tuberculin-test could be proven virulent, whether there were any clinical signs of tuberculosis or not. The milk of fifteen cows which had reacted was selected, and guinea-pigs were inoculated. Ten of the cows gave virulent milk, three of them showed clinical signs of the disease, and two others did not show any sign after three clinical examinations, made at intervals of three months. The authors conclude from this that a clinical examination alone is not sufficient to assure the innocuity of the milk, and that only the tubeculin-test should be relied upon.

Ostertag also made experiments in this direction at the instigation of the Minister of Agriculture, and his conclusions are somewhat opposed to those of the former experimenters. He submitted the milk to direct bacteriological examination, inoculated it into the peritoneum of guinea-pigs, after centrifugation by Obermuller's method, and finally administered it by injection. He first experimented with the milk of forty-nine cows, and continued for one month. The results were negative. Guinea-pigs killed from forty-six to sixty-eight days after were found free from tuberculosis. In a second series of experiments one guinea-pig inoculated into the peritoneum was killed seventy-one days after, and was found slightly tuberculous, but a second inoculated with the same sample presented no trace of infection; and, again, a third guinea-pig which had ingested 300 grammes of the same liquid remained healthy. Thus the milk showed virulence only in a slight degree, and was not potent enough to cause the disease by ingestion in a subject so sensitive to tuberculosis as the guinea-pig. Ostertag concludes from this that the milk from cows reacting to tuberculin, without presenting any clinical signs of tuberculosis, may be regarded as not dangerous.

Kuno Obermuller has made some experiments to show the possibility of tuberculous infection of butter. He recounts that his experiments, made in 1895, were unsuccessful from the fact that he inoculated animals that died from peritonitis after a few days. He attributed these accidents to the resorption of the fat, and to avoid this he had recourse to centrifugation, which separated the fat, the milky residue containing the bacilli. He submitted ten samples of butter bought in Berlin to experiment. Forty-one guinea-pigs received ½ to 2 c.c. of the liquid, which was equal to about 4 to 16 c.c. of butter. The animals were separated by threes, fours, and fives in disinfected cages, and were weighed and observed daily. Twenty-nine showed evidence of the disease, and twelve remained healthy. Peritonitis was not observed. The diseased animals became much emaciated and showed typical lesions at post-mortem examinations. Cultures were made from the bacillus found in the lesions, which confirmed the post-mortem diagnosis.

Seven out of ten samples of butter showed virulency, and the author concludes that the tubercle bacillus in butter is not as rare as has been announced.

Morgenroth demonstrated the presence of the bacillus in margarine, and he affirms that it is not by any means rare. In the preparation of the product a temperature of 105° F. is hardly exceeded. Ostertag remarks on this subject that the product is largely made with the fat of the mesentery and mediastinum, the precise places where are included the glands most affected with tuberculosis.

This opens up another phase in the danger to the human family of tubercular infection from the food-supply obtained from animals.

Dr. Wilson: On ante-mortem we frequently find cows where the udder is enlarged and contains matter and little abscesses, and I would like to ask the writer of this paper how he would diagnose whether this diseased condition arose from tuberculosis or was simply an inflammatory product.

Dr. Netherton: I think that where you have an inflammation due to mammitis the nodules are not as small as in tuberculosis, but I believe it would have to go to post-mortem before it could be determined positively. There is a cow out here now in one of these dairies—a nice Holstein cow—

and giving about six gallons of milk daily. On the right hind-quarter a little abscess developed. It commenced as mammitis, I think, and I prescribed the regular treatment for mammitis, to which it seemed to yield partially. The enlargement abated to about the size of a hen's egg. Two weeks later I was called again, and found it had become very hard. I put a knife in it and got quite a bit of pus. It seemed to heal up, and left a little nodule there about the size of a walnut. It ran along that way for four or five months, and did not seem to bother her, when about two weeks ago it commenced enlarging and it got the size of a goose-egg. I was again called and again applied the knife, and, as before, obtained a considerable quantity of pus. It is going down nicely, and I think will soon be all right, but all this time the milk from this cow has been sold in the city. I do not know whether it was a case of simple mammary abscess or tubercular abscess.

Dr. Peters: I would call it a suspicious case of tuberculosis. All such cases should be tested with tuberculin.

Dr. Stewart: As the question has drifted into one of ante-mortem and post-mortem determination, I might state that it is altogether probable that there are many cases of mammitis which result in what is popularly known as spoiled bag which are not tubercular. The udder, one or several quarters of it, may be involved, but is usually involved as a whole, and upon palpation presents quite a uniform surface, which is quite dense, and in these cases there is no characteristic enlargement of the lymphatic glands above and behind the udder, while in cases of tubercular mammitis tubercular masses are developed in the substance of the udder, usually so pronounced that they can be readily determined by palpation; also there is involvement of the supermammary lymphatic glands. I do not know that it is common to find a tubercular udder in which the tubercular process has resulted in the formation of abscesses such as have been described. However, there are so many things with which I am not familiar which are facts that I would not undertake to say the case described is not tubercular. Certain it is that it would be good policy to test a case of that kind with tuberculin, and in that manner pass upon the question.

Dr. Wilson: Down here we get many cases of that kind almost every day, in fact, and we pass them along unless they show other symptoms along with the enlargement, where the udder has had little abscesses form from spoiled bag, and upon post-mortem examination they show no sign or trace of tuberculosis in most cases.

Dr. Cooper: I had a case last summer at the packing-house at Kansas City, the first I have noticed. The udder showed quite a large abscess and tubercular indications all around it. I told the boys to be careful and save the entrails. When the animal was hung up it showed no great emaciation; lungs were found to be very badly tuberculous, and intestines, liver, and ovaries badly involved. In fact, the whole system was about as bad as I ever saw. She was not fat, nor yet what you would call thin, and probably might be passed as a cow with spoiled bag. This large abscess would probably hold half a teacupful in one side of the udder, on others not quite so much, of quite soft pus, which flowed readily, and which did not have the usual appearance of pus which you will see in tuberculosis—different color somewhat and a great deal thinner.

(To be continued.)

MASSACHUSETTS VETERINARY ASSOCIATION.

THE regular monthly meeting was held on the evening of December 27th at 19 Boylston Place, Boston. President Langdon Frothingham called the meeting to order at 8.15. Minutes of previous meeting were read and adopted.

Dr. John M. Parker moved that the Secretary be instructed to send a constitution and application-blank to every graduated practising veterinarian in the State. Dr. Daniel Emerson seconded the motion; carried.

The essayist for the evening, Dr. Frothingham, read the following paper on "Actinomycosis."

He reviewed the subject of actinomycosis and compared this disease with bothryomycosis, a disease of the horse manifested by an infectious tumor—bothryomycoma—which both macroscopically and microscopically closely resembles the actinomycoma. He spoke of the various animals in which actinomycosis has been observed and the portions of the body where these tumors have been found, particularly of actinomycosis of the udder in cattle. Although the disease in this organ is rather uncommon, it has been thoroughly described by several European investigators. Jensen, of Copenhagen, for instance, has written of twenty cases, and calls attention to its occurrence in two distinct forms. In one form, the more common, the lesions are usually not numerous, but are apt to be extensive, a single tumor becoming as large as a hen's egg or even larger, and containing much pus. One or more quarters of the udder may be involved. In the other form the udder may become double its normal size in the course of a few months, and is very hard and rough. Sometimes only one quarter, sometimes all four are attacked. The cut surface may seem almost normal, but upon close inspection the lobules are seen to be larger than usual, and to contain nodules with purulent centres. These nodules may be exceedingly small, hardly visible to the unaided eye, or they may be as large as a pea. They may be found in countless numbers scattered throughout the gland, and are also found on the mucous membrane of the milk-ducts and cisterna. Such cases of actinomycosis of the udder so closely resemble miliary tuberculosis of that organ that a diagnosis can only be made by the microscope. Actinomycosis of the udder in swine is mentioned as a common occurrence in Europe by Johne and others. The essayist had never seen a case in this country. He then demonstrated the udder of a cow which showed extensive lesions illustrating the second form of actinomycosis as described by Jensen. He called attention to the peculiar pus from the nodules which showed the typical yellowish granules (ray fungus or actinomyces), always present in cases of actinomycosis, and by which a diagnosis is readily made. A quantity of these granules in a small tube of alcohol were also shown. The appearance of these granules fresh from the pus and crushed under the cover-glass was demonstrated with the microscope. Sections of the udder, stained with hæmotoxylin and eosin, were shown with both high and low power of the microscope, further illustrating the appearance of the actinomycosis and the histological structure of the nodules.

The cause of the disease was then spoken of. Pictures were shown to illustrate its polymorphous form. To what group of microorganisms the actinomyces properly belongs is still an open question, the speaker said, so that the term actinomyces seems still the best to use. The best opinion agrees that it is exceedingly difficult to cultivate this organism artificially, and that experimental inoculation from animal to animal is practically impossible. The disease, therefore, can only be infectious to a very mild degree, if at all, an assumption amply upheld by experience, since markedly diseased animals may remain for years in a herd without infecting other animals. On the contrary, the disease is often observed in mild enzootic form where herds are fed on certain grasses and grains, especially, it seems, where these are grown upon reclaimed lands. The life-history of this microorganism is unknown. It may be that its life in the animal body represents only one phase, and that the most virulent form occurs in its life upon some grasses and grains.

Dr. Frothingham then spoke of "Bothryomycosis." In 1869 Bollinger gave this name to a disease of the lungs in horses, which is characterized by fibrous tumors varying in size from a small pea to a pigeon's-egg, and having larger or smaller purulent centres. He described a specific fungus as the cause, and called it zooglasa pulmonis equi. In 1884 Rivolta again described this fungus, and classed it with the actinomyces bovis. Later, in 1885–1886, Johne and Rabe further studied this organism, succeeded in cultivating it in the laboratory, and reproduced the disease by experimental inoculation. The organism is a micrococcus which in the animal body collects in clumps, and these clumps become surrounded by a zooglosa mass. Johne called the organism micrococcus ascofurmans. Besides the tumors in the lungs, this micrococcus has been shown to be the cause of numerous other tumors in the horse. The most common is the champignon or chronic scirrhus cord; also small tumors in the cutis and subcutis at any part of the body where there is pressure from the harness (region of the collar, croup, corners of mouth, etc.), tumors on stump of tail after docking, tumors in the udder, and, finally, as the basis of "fistulous withers." The macroscopical lesions are exactly similar to those of actinomycosis, even to the yellowish granules. Differential diagnosis is only possible with the microscope when it is seen that these granules are composed of numerous round masses of zooglosa and not actinomyces. Such diagnosis is essential since in several instances scirrhus cord in the horse has been caused by the actinomyces. Up to the present time bothryomycosis has only been observed in the horse.

Sections of a tumor of the cord and one of the udder of a mare were shown.

Dr. Winchester moved a vote of thanks to the essayist.

Dr. E. T. Harrington reported a case of "Colloid Cancer of the Stomach."

Dr. J. F. Winchester reported a case of "Aneurism and Embolism of Post Aorta and both Iliacs of the Right Side and the Internal of the Left." History: A chestnut gelding, aged, was subject to attacks of colic during the past three years. Lameness first manifested during the summer of 1899, which, with rest. passed away. During the fall the lameness became very severe, especially if the horse was driven faster than a walk. This would pass away in a few days. Just previous to being killed the horse could not trot half a mile without becoming very lame and in great pain. Post-mortem showed a dilatation of the posterior aorta, with an organized clot from posterior end anteriorly to where the iliacs are given off. The iliacs of the right side were dilated and contained an organized clot for about twelve inches. The internal iliac of the left side contained a clot several inches in length.

Members present: Drs. Emerson, Frothingham, Harrington, Howard, Lee, Lewis, Parker, Pierce, Stickney, Winchester, and Winslow.

HENRY D. LEWIS,
Secretary.

THE INDIANA ASSOCIATION OF VETERINARY GRADUATES.

THE annual meeting was held at Indianapolis, January 3, 1900, with the following gentlemen in attendance: Drs. J. W. Klotz, T. A. Balser, O. L. Boor, J. E. Cloud, C. P. Wilson, G. H. Roberts, J. Crail, Geo. G. Ferling, Robert Harper, J. M. Patterson, A. W. Bitting, J. C. Rogers, L. A. Greiner, J. B. Heaton, I. D. Reynerson, F. W. Brewer, S. M. Springer, James Brashaw, J. M. Greiner, Dr. Mueller, and the visiting veterinarians from the Bureau of Animal Industry: Drs. N. C. Sorensen, Tait Butler, R. W. Tuck, and S. G. Hudson.

Dr. G. H. Roberts presented a paper upon "Parturient Paresis," giving his experience in a number of cases with the Schmidt treatment. The paper was fully discussed, and while the treatment has not been nearly so successful in the hands of those present as is frequently reported in the journals, it has been found superior to the old methods employed. Dr. Bitting reported in this connection that he had met a dairyman who for more than twenty-five years had treated his cases by washing out the udder with baking soda (bicarbonate of soda), a tablespoonful to the quart of water. His record of his cases showed that he had had good success as far as mortality was concerned, but had lost a large proportion of the udders with mammitis. He had used any kind of warm water, regardless of whether it had been boiled, and knew nothing of sterilizing the instrument, the injection fluid, or parts, which accounted for the unfavorable local effects.

Dr. L. A. Greiner read a paper upon "Fistulous Withers," and advocated bold operative procedures rather than the so-called conservative treatment.

Dr. T. M. Brewer discussed "Croupous Pneumonia."

Dr. J. O. Greeson sent two pathological specimens that were particularly interesting. One was a solid mucous cast of about three feet of the ileum and four inches of the cæcum, passed by a calf four months old. The case was catarrhal enteritis. The second specimen was a mucous cast of the prepuce of a steer affected with balanitis. Dr. Bitting renewed his plea for the preservation of choice pathological specimens and to make this exhibition a feature of the annual meetings. Through his efforts about three hundred specimens and photomicrographs of pathological tissues were made a part of the exhibit of comparative pathology at the State Medical Society last year and at the American Medical Association meeting. An attempt will be made to make the exhibit better this year.

This is the first meeting in five years in which the Indiana veterinarians have got down to work. Heretofore the question of legislation has received attention to the exclusion of other subjects, and with the effect of dividing the members. Indiana has only a little more than one hundred qualified veterinarians, distributed over seventy counties in the State, and the average distance which a man must go to obtain such service is about twelve miles.

Under such circumstances legislators will not consider a veterinary bill, and the Association has at last found it out.

Dr. Butler made a plea for a large attendance from this State at the forthcoming meeting of the American Veterinary Medical Association at Detroit. An effort will be made to get at least twenty to attend.

The officers for the coming year are: President, J. W. Klotz, Nobleville; Vice-President, Geo. G. Ferling, Richmond; Secretary, G. H. Roberts, Indianapolis; Treasurer, O. L. Boor, Muncie.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

THE sixteenth annual meeting was held at 495 Broad Street, Newark, January 11, 1900. The meeting was called to order by the President, Dr. L. P. Hurley, at 11 o'clock. Ten members were present at roll-call, and about twenty applicants for membership, also two delegates from the Keystone Association—Drs. W. Horace Hoskins and W. L. Rhoads, and Dr. L. Pearson, President of the American Veterinary Medical Association.

Minutes of previous meeting read, and, after correction, approved. The President then made his annual address, and the Secretary's report was read and accepted.

Dr. Wm. Herbert Lowe then read the following resolutions: *Whereas*, the Veterinary Medical Association of New Jersey has learned with profound sorrow of the death of Dr. Wm. H. Arrowsmith, of Jersey City, former President of this' Association; *whereas*, Dr. Arrowsmith was held in high esteem, not only by the members of this Association, but by the profession throughout the State: *and whereas*, Dr. Arrowsmith during his entire professional career maintained the dignity of the profession, always doing his share to promote the elevation of veterinary science and art; therefore, be it *resolved*, that we record these facts, and that the profession has sustained a great loss in his death, and that we, the members of the Veterinary Medical Association of New Jersey, a personal friend and associate, whose memory shall long remain fresh in our recollections; and be it further *resolved*, that these resolutions be spread in full upon the minutes and a copy be sent to the family of the deceased. Wm. Herbert Lowe, J. W. Hawk, and James D. Hopkins, Committee. Adopted.

Dr. Lowe then read the agreements of the New Jersey State Veterinary Society and Veterinary Society of the State of New Jersey to merge into and join the Veterinary Medical Association of New Jersey.

The President then ordered a recess for half an hour for the board to make their report, and at 12 o'clock the Board of Censors reported favorably on the following applicants for membership: Drs. Edwin Ancker, 167 West Thirty-first Street, New York; A. W. Axford, Naughwright; F. E. Brooks, 237 Seventeenth Avenue, Paterson; A. Brown, Windsor; E. Buckley, East Orange; T. Earle Budd, 90 Part Street, Orange; J. J. Cattanach, Morristown; J. C. Corlies, 29 East Park Street, Newark; T. J. Cooper, 5 Bank Street, Paterson; Wm. Dimond, 95 Summit Street, Newark; W. H. Dustan, 29 De Hart Street, Morristown; Van. C. Dull, 104 Cross Street, Paterson; A. D. Edwards, Atlantic Highlands; G. P. Ellice, Morristown; R. W. A. English, Boulevard and Communipaw Avenues, Jersey City; J. M. Everitt, Hackettstown; Hugh Exton, Washington; W. C. Ferguson, 589 Broadway, Paterson; J. B. Finch, Ramsey; W. J. Fredericks, Delawanna; Wm. Gall, Matawan; J. O. George, Camden; Julius Gerth, Newark; James T. Glennon, 146 Summer Avenue, Newark; G. F. Harker, 147 Perry Street, Trenton; W. F. Harrison, Bloomfield; R. O. Hasbrouck, 160 Jefferson Street, Passaic; J. W. Hawk, 29 Halsey Street, Newark; Howard S. Holdenby, Ridgewood; Edwin A. Hogan, 24 Plane Street, Newark; Jas. D. Hopkins, 39 Orchard Street, Newark; J. B. Hopper, Ridgewood; L. P. Hurley, Hopewell; Nicholas J. Kaiser, 52 Niagara Street, Newark; John Kehoe, Lyndhurst; B. F. King, Little Silver; M. O. M. Knott, 159 Crescent Avenue, Plainfield; Henry J. Lehrmann, Montclair; Otto R. Leis, 24 Frederick Street, Newark; E. L. Loblein, New Brunswick; S. Lockwood, Woodbridge; Wm. Herbert Lowe, 188 Ellison Street, Paterson; J. Payne Lowe, 185 Jefferson Street, Passaic; Anthony P. Lubach, Pompton Lakes; A. Machan, 58 River Street, Paterson; Chas. T. Magill; Haddonfield; E. Mathews, 307 Second Street, Jersey City; James T. McDonough, Montclair; P. F. McGuiness, 77 Park Street, Newark; A. H. McIntosh, Summit; W. B. E. Miller, Camden; John M. Mitchell, Madison; J. Mosedale, Morristown; E. R. Ogden, Orange; George W. Pope, U. S. Quarantine Station. Garfield; H. W. Reed, Freehold; W. J. Reagan, 606 River Street, Paterson; J. G. Richardson, Morristown; W. Runge, 130 Union Street, Newark; L. R. Sattler, 22 Seventeenth Avenue, Newark; J. Serling, 310 West 125th Street, New York; Arthur W. Smith, Bloomfield; Raymond B. Smith, Montclair; T. E. Smith, 309 Barrow Street, Jersey City; S. S. Treadwell, Englewood; H. Van de Roest, 158 Orchard Street, Newark; A. G. Vogt, 121 Plane Street, Newark; E. R. Voorhees, Somerville;-F. A. Zucker, 20 West Jersey Street, Elizabeth. All were unanimously elected; the board also reported favorably on accepting the offer of the other societies.

Dr. W. H. Lowe then offered the following resolution: *Whereas*, the New Jersey State Veterinary Society at a special meeting held at the residence of Dr. James D. Hopkins, President, 39 Orchard Street, Newark, N. J., January 5, 1900, for the purpose of merging that society with this association, did unanimously pass a resolution agreeing to cease to exist as an independent organization, and did further agree to merge and join with this association; therefore, be it *resolved*, that the Veterinary Medical Association of New Jersey agree to and do hereby accept the proposition of the New Jersey State Veterinary Society, merging the said society with this association, admitting such members as are in good standing, whose dues are paid in full to date, without initiation fees, with full rights and privileges as are now enjoyed by members of this Association, upon the said society passing over all books, papers, and other property to the Veterinary Medical Association of New Jersey.

Dr. James D. Hopkins, last President of the New Jersey State Veterinary Society, then turned over the charter and books of their Society to Dr. L. P. Hurley, President of this Association, who accepted them and made a short address of welcome. and the merging of the New Jersey State Veterinary Society into the Veterinary Medical Association of New Jersey was consummated. Adjourned at 1.15 for dinner; reconvened at 2.30.

Whereas, the Veterinary Society of the State of New Jersey and Vicinity, at a special meeting held at the residence of President Dr. L. R. Sattler, No. 22 Seventeenth Avenue, Newark, N. J., on Thursday, December 28, 1899, for the purpose of merging that Society with this Association, did unanimously pass a resolution, agreeing to cease to exist as an independent organization, and did further agree to merge and join with this Association; therefore, be it *resolved*, that the Veterinary Medical Association of New Jersey agree to and do hereby accept the proposition of the Veterinary Society of the State of New Jersey and Vicinity, merging the said Society with this Association, admitting such members as are in good standing, whose dues are paid in full to date, without initiation fees, with full rights and privileges as are now enjoyed by members of this Association, upon the said Society passing over all books, papers, and all other property to the Veterinary Medical Association of New Jersey.

Dr. L. R. Sattler, President of the Veterinary Society of the State of New Jersey and Vicinity, and Dr. E. Buckley, the Secretary, were present and surrendered the books and charters and papers to the President, who welcomed them into the fellowship of the only Veterinary Medical Association of New Jersey.

Dr. William Herbert Lowe then made an address, followed by Dr. Leonard Pearson, Dr. W. Horace Hoskins, and Dr. W. L. Rhoads, of Pennsylvania, and by several members of the Association; Dr. T. Earle Budd read a paper on "Maternal Dystocia," but being late there was no discussion.

Dr. Lowe offered the following resolution: *Resolved*, that the Veterinary Medical Association in annual convention assembled hereby approves and indorses the plan to organize an Army Veterinary Contingent of Commissioned Veterinarians under a chief veterinarian having adequate rank; and be it further resolved, that the members of this Association earnestly request the members of Congress from New Jersey, and especially the Senators—the Hon. W. J. Sewell and the Hon. John Kean—to use their influence and all honorable methods to advance the above plan.

The Secretary was instructed to have typewritten copies sent to each Senator and Congressman in the State, with the names of all members attached.

Moved and carried to meet in Newark in May, the place to be selected by the President and Secretary. Adjourned at 4.15.

S. LOCKWOOD,
Secretary.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

THE fifth semi-annual meeting of the Minnesota State Veterinary Medical Association was held at the Merchants' Hotel, in St. Paul, January 11 and 12, 1900. President Dr. M. H. Reynolds, of St. Anthony Park, called the meeting to order.

The following members responded to roll-call: Drs. C. C. Lyford, S. D. Brimhall, J. G. Annand, J. S. Butler, A. A. Keyes, and M. J. Sexton, of Minneapolis; B. A. Pomeroy, R. Price, and G. A. Dallamore, of St. Paul; M. H. Reynolds, of St. Anthony Park; J. P. Anderson, of Rochester; L. Hay, of Faribault; K. J. McKenzie, of Northfield; B. Lambrechts, of Montevideo; S. H. Ward, of St. Cloud; W. Amos, of Owatonna; J. N. Gould, of Worthington; George McGillivary, of Pipestone; J. N. Gould, of Fairmont; J. J. McLaughlin, of Blue Earth City; H. C. Lyons, of Hutchinson; H. C. Peters, of Litchfield; F. H. Farmer, of Wahpeton, N. D.

President Reynolds gave an address, speaking lengthily on how to make a State Veterinary Medical Association a success, bringing out some very useful points with regard to place and way of holding Association meetings, emphasizing the fact that Association work should be based upon the work of its individual members.

Dr Ward gave a report on veterinary college education, bringing out some very important facts in regard to graduates of two-year colleges.

Dr. Reynolds, as Chairman of the Committee on Recent Veterinary Literature, read a very interesting report on the great advances made in veterinary surgery.

Dr. Brimhall reported some results obtained from the use of potassium iodide in the treatment of parturient paresis and in azoturia. Dr. Brimhall also spoke quite lengthily on dealing with infectious diseases in animals.

Dr. C. C. Lyford then made his report as Chairman of the Committee on Legislation and Empirics, stating that the case against Dr. McCullock, of Minneapolis, for illegal practice had been set for trial on January 19th, he having pleaded not guilty.

Farmer Miles, of Charleston, Ill., who was present at the meeting, was called upon and made some very interesting remarks on ridgling castration.

The meeting then adjourned to the State Farm for supper, after which clinics, as follows:

Removal of Scirrhous Cord, Farmer Miles; Operation for Fistulous Withers, Dr. J. N. Gould; Removal of Lateral Cartilage for Quittor, Dr. C. C. Lyford.

The meeting then adjourned till 9 A.M., Friday, 12th, when the following applicants were taken in as new members of the Association: Dr. C. T. Eckles, St. Charles; W. A. Sprouler, Waseca; M. S. Whitcomb, Austin; Dr. E. T. Frank, Warren; T. Falconer, Glennwood.

On motion, Drs. Reynolds and Brimhall were appointed to draw up an agreement with the Board of Trustees of the State Agricultural College to make arrangements for a Minnesota State Veterinary Medical Museum, to be contributed to by the different members of the Association.

The Secretary then read a circular letter from Dr. Salmon, asking for the support of the individual members in fighting for the bill for the improvement of the United States Army Veterinary Corps.

On motion, the President appointed a committee of three to draw up resolutions representing the sentiments of the Association with regard to the Army bill.

Committee: Dr. S. H. Ward, Dr. E. T. Frank, Dr. J. G. Annand.

A voluntary contribution was then taken up and the Secretary instructed to send the same to Dr. Salmon for the U. S. V. M. A. Committee on Army Legislation.

The election of officers then took place with the following result: President, Dr. S. H. Ward; First Vice-President, Dr. W. Amos; Second Vice-President, Dr. C. C. Lyford; Secretary and Treasurer, Dr. K. J. McKenzie. Trustees: Drs. B. Lambrecht, H. C. Lyons, and J. S. Butler.

The meeting then adjourned for dinner.

At 2 P.M. the meeting was called to order by President S. H. Ward.

Dr. C. C. Lyford reported a case of unusual and interesting lesions of glanders, and exhibited a portion of a trachea showing marked glanderous lesions.

A very interesting discussion followed on the use of mallein in the diagnosis of glanders.

Dr. Head then read a very interesting paper on the "Leucocyte Count in Septic Infection," followed by an interesting discussion.

On motion, a vote of thanks was tendered Dr. Head for the manner in which he handled his subject.

The following committees were then appointed: Colleges—Dr. S. H. Ward. Infectious Diseases—Dr. S. D. Brimhall. Finances—Dr. M. J. Sexton. Legislation—Drs. J. S. Butler, R. Price, and C. C. Lyford.

The Committee on Recent Veterinary Literature was subdivided as follows: Surgery—Dr. M. H. Reynolds. Bacteriology—Dr. S. D. Brimhall. Medicine—Dr. J. N. Gould.

The meeting then adjourned.

K. J. McKENZIE,
Secretary-Treasurer.

PERSONALS.

Among those present at the annual banquet of the College Veterinary Society of the University of Pennsylvania in December were to be noted Drs. Adams, Harger, Harshberger, and Hoskins, of the teaching staff, and Dr. Seeley, of the graduates.

Dr. W. B. E. Miller, recently of the Garfield Quarantine Station of New Jersey, has been transferred to the Philadelphia inspection department.

Dr. William J. Finn, of Brooklyn, conducts the Long Island Veterinary Hospital in conjunction with his outdoor practice.

Dr. D. B. Dennish, of Morrisville, Pa., was a visitor to the JOURNAL office in January. He reported a very much improved condition in veterinary practice during 1899.

Dr. J. W. Dunham, of Fargo, North Dakota, fills the rôle of chief veterinarian to North Dakota and veterinarian to the State Agricultural College.

Dr. M. H. Reynolds, of Minneapolis, Minn., addressed the State Agricultural Society at St. Paul in January on "State Work with Infectious Diseases of Animals."

Dr. J. H. Luff, of Hudson, N. Y., makes a specialty of diseases of the respiratory organs in veterinary practice.

Drs. Leonard Pearson, of Philadelphia, and H. D. Gill, of New York, were the guests of Dr. Runge, of Newark, N. J., on a visit in January to the Francisco dairy at that point.

Dr. J. Stewart McClure, of Oxford, Pa., has been appointed assistant State veterinarian of Montana.

Dr. D. F. Luckey, of Columbia, Mo., has succeeded Dr. T. E. White as State veterinarian of that State.

Dr. Leonard Pearson addressed in January the State Breeders' Association on "Sanitary Stables" at Pittsburg.

Dr. C. M. Teegarden, of Warsaw, Ind., who has not been in active practice for some years, is about to resume professional duties again.

Dr. E. C. Fox, of Baltimore, Md., is fitting up a hospital to be used in connection with his outdoor practice.

Dr. L. D. Horner, of Woodstown, N. J., was a visitor to Philadelphia in January, reporting practice as unusually good in his district.

Dr. John F. McAnulty, of Philadelphia, has been on the sick-list for some time.

Dr. E. C. Fox, of Baltimore, Md., was a visitor to Philadelphia in January.

Dr. Leonard Pearson, of Philadelphia, addressed the Bradford County Farmers' Institute at Canton in December.

Dr. W. E. Kinney, of Madison, South Dakota, combines the dealing in real estate with his professional vocation.

Dr. G. W. Pope, of Boston, succeeded Dr. W. B. E. Miller at the Garfield Quarantine Station, New Jersey.

Dr. Abraham L. Lehman, of Mullen, Montana, assistant State veterinarian, has relinquished his post of duty in this direction to enter upon the practice of human medicine.

Dr. W. Horace Hoskins, of Philadelphia, was a visitor to Harrisburg in January in conference with Governor Stone relative to matters pertaining to the State Board of Veterinary Medical Examiners.

Dr. Wm. H. Welch, of Johns Hopkins University of Baltimore, is much interested in the study of the pathology of osteoporosis in horses.

Governor Stone, of Pennsylvania, reappointed Dr. James W. Sallade, of Pottsville, a member of the State Board of Examiners in January.

Dr. John J. Repp, of Ames, Iowa, is one of a committee of three of the State Association to seek legislation in the interest of the profession in the "Hawkeye State."

Dr. Jacob Helmer, of Scranton, Pa., was a visitor to several of the Eastern cities of Pennsylvania in January, investigating the milk-inspection systems and regulations.

Dr. F. H. Mackie, of Fairhill, Md., is a member of the State Legislature.

Drs. Leonard Pearson and M. E. Conard addressed the meeting of the State Board of Agriculture at Harrisburg, Pa., in January.

Dr. James A. Marshall, of Philadelphia, was unanimously elected Vice-President of the Philadephia Turf Club. Dr. Marshall takes a keen interest in all that pertains to the development of the American trotter.

Dr. M. E. Conard, of West Grove, Pa., was made a member of the Executive and Legislative Committees of the State Agricultural Society at its annual meeting in January.

Dr. W. W. Gardiner, of Hughesvile, Pa., has returned to his native heath, and is now located at Mt. Laurel, N. J.

Dr. Harri Dell, of Wabash, Ind., has received an appointment in the inspection service of the Bureau of Animal Industry and directed to report at South Omaha, Neb., for duty.

Dr. Chas. E. Bridge, of West Philadelphia, met with an accident in December by being struck by a trolley car.

Dr. T. E. Smith, of Jersey City, N. J., holds the office of veterinary surgeon to the Board of Police Commissioners of that city.

Dr. M. H. Henderson, of Syracuse, N. Y., holds the position of State veterinarian for the entire Commonwealth.

Dr. W. H. Dalrymple, of Baton Rouge, La., who is Secretary of the Louisiana State Agricultural Society and Stockbreeders' Association, presented an address before their meeting at Arcadia on January 25th on "The Value of Artificial Immunization Against Texas Fever to the Cattle Interests of the State."

Dr. Brimhall, field veterinarian to the Minnesota State Board of Health, has been taking a well-earned vacation, devoting his spare time to a course of special pathology at the State University.

Dr. Reynolds gave a lecture on the "Physiology of Digestion" to special dairy students in the School of Agriculture on January

8th; presented an annual report as Director of the Veterinary Department at the State Board of Health meeting, January 9th; gave a paper on "State Work with Infectious Diseases of Animals" at the joint meeting of the State Agricultural Society and Minnesota Stockbreeders' Association, January 10th; presided at the meeting of the Minnesota State Veterinary Medical Association, January 11th and 12th, presenting a paper on "Recent Progress in Veterinary Surgery," gave the president's address; in charge of the Association clinic Thursday evening, January 11th, at the University Hospital. In addition to this he provided for two different classes daily for the week in the University, and declined, on the grounds of physical impossibility, invitations to take part in the programmes of the Tuberculosis Convention at Des Moines, January 9th, and the programme of the Iowa State Veterinary Association, January 10th and 11th, all occurring during one week.

Dr. A. F. Martin, formerly of Fishkill Landing, N. Y., is now in the inspection department of the Bureau of Animal Industry, and located at Boston, Mass.

Dr. W. F. Derr, of Wooster, Ohio, holds the position of livestock inpector for the Live-stock Commissioners of Ohio and conducts a large infirmary in connection with his practice.

Dr. Wm. G. Shaw, recently stationed at the Bureau of Animal Industry, Kansas City, Mo., has been ordered to Nogales, Arizona, to take charge of that station for the importation of Mexican stock.

Dr. George A. Evans, of San Francisco, California, has been compelled to retire from active practice by the serious inroads of chronic rheumatism.

Dr. Beale A. Robinson, of Parsons, Kansas, is a matriculate at the Ontario Veterinary College, Toronto, Canada, the present session.

Dr. D. Coristine, of Maple Creek, Assinaboine, Northwest Territory, fills the rôle of Veterinary Staff Sergeant to the Northwest Mounted Police.

Dr. Chas. Gresswell, of Denver, Colo., addressed the National Live-stock Association in January on the subject of "Tuberculosis from the Range Standpoint."

Dr. George W. Turner, of Highwood, Ill., is very enthusiastic over the selection of Detroit for the meeting place of the American Veterinary Medical Association for 1900.

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THE CLINICAL VALUE OF A LEUCOCYTE COUNT IN THE DIAGNOSIS OF SEPTIC INFECTIONS.[1]

BY GEORGE DOUGLAS HEAD, B.S., M.D.,
INSTRUCTOR IN PATHOLOGY IN THE UNIVERSITY OF MINNESOTA.

THIS paper was originally written to be read before a society of medical men who deal with septic infections in man. What is said, however, concerning the value of the leucocyte-count in detecting pus-formations in human beings can be applied by veterinarians to septic infections in the higher animals.

A limited observation seems to indicate that the number of leucocytes in the circulating blood of the higher animals, such as the dog, cow, horse, pig, rabbit, cat, etc., is nearly the same as that in man, and, further, that these leucocytes are increased or diminished in number in man and the higher animals by like causes.

White blood-counts in five healthy dogs showed the following: 9600, 9000, 6600, 7300, 8000, or an average of about 8000 leucocytes to the c.mm., a number practically the same as the normal number of leucocytes in the circulating blood of man. In twenty healthy rabbits counted by the writer the number of white cells in the circulating blood averaged about 8000, the same as in the dog and man. Although the writer has not made counts upon other animals, he feels certain that all the higher animals have approximately 8000 white corpuscles to the c.mm. in the circulating blood.

When we come to deal with septic infections in higher animals the writer has made counts in enough instances to make it altogether probable that in this class of pathological conditions the number of leucocytes in the circulating blood of the higher animals is increased the same as in man. Take dogs, for example. Septic infection seems to be followed by a well-marked leucocytosis.

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[1] Read before the January meeting of the Minnesota State Veterinary Medical Association.

In one dog that had a normal count of 8000, and that subsequently developed a septic infection in the right foreleg with the formation of a focus of pus, the leucocyte-count was 20,600. In another dog that developed an abscess at the site of an operation the white-cell count was 36,300; his count previous to the abscess was 9200.

In rabbits, also, a septic infection seems to be followed by a pronounced leucocytosis. In a series of experiments which the writer undertook to determine the white blood-count in rabbits infected with rabies, Rabbit No. 63 up to two days of its death counted 7300 white cells to the c.mm., then for some unknown reason the count mounted up to 16,000, a very unusual observation, since rabies does not cause a leucocytosis in rabbits. Thinking I had erred in the count, I made a recount, with 20,600 as the result. Still being skeptical, I waited some hours, and recounted the rabbit's blood and found 15,000 white cells to the c.mm. I could not account for this leucocytosis upon any other supposition than that this rabbit harbored some complicating conditions, probably a septic infection. At post-mortem a small abscess was found at the seat of inoculation.

The writer feels certain that septic infections in the higher animals produce a leucocytosis similar to that in man, and that what may be said in this paper regarding the leucocyte-count in septic infections in man may be directly applied to the higher animals.

Leucocytes are present in the circulating blood of the human adult in the number of 7000 to 8000 to the c.mm. In children the number is somewhat higher. Infants of one year or less average about 12,000, while in older children the count is 8000 to 9000 corpuscles to the c.mm. Under certain conditions the number of white cells in the human blood may be increased beyond the normal limits. Such an increase may be very great, reaching 30,000 to 50,000 to the c.mm., or it may be only slight, 10,000 to 15,000 to the c.mm. Any increase in the number of leucocytes of the circulating blood is called leucocytosis, or, as some authors prefer, hyperleucocytosis.

What forces act to occasion this rise in the number of white cells in the blood has not been definitely determined. Leucocytosis has been theoretically explained by Virchow and Ehrlich, who consider it due to a stimulation of the blood-making organs, and consequent over-production of white cells.

The theory which, it seems to me, best explains leucocytosis is that advocated by von Linibeck, Jakob, and Goldschneider. These observers take the stand that there is no actual manufacture of new white cells in the production of leucocytosis, but that the bacterial toxins circulating in the blood act in a chemotactic way to attract into the blood-stream leucocytes which were before stationed in the lymph-spaces, spleen, and lymph-nodes, and that these leucocytes, added to those already in the blood, cause the higher white blood-count and the phenomena known as leucocytosis.

It does not matter, in the consideration of this subject, how we explain the phenomena theoretically. We know that it exists, and that under certain conditions the leucocytes of the circulating blood may be increased beyond the normal limits. Some of these conditions are physiological, such as the leucocytosis of pregnancy, of exercise, of digestion, and the like. Such an increase of white cells is of importance from a pathological point of view only that the clinician making white counts with the patient in such physiological states must bear in mind the leucocytosis thus produced. Other conditions causing an increase of white cells are pathological. Such are the leucocytosis of pneumonia, rheumatism, erysipelas, diphtheria, scarlet fever, secondary anæmia, and especially all forms of septic infections.

It is to this latter condition, namely, the presence of pus in the body and the consequent leucocytosis which it occasions that your attention is directed. The presence of pyæmic infection in the body is usually attended by a well-marked increase of white corpuscles in the circulating blood. This fact holds true, whether the infected point be a furuncle on the back of the neck, an abscess in the middle of the ear, or a purulent inflammation in a joint. Even if the process is more severe and involving more important structures, such as the vermiform appendix or the Fallopian tube, this same influence in the number of leucocytes in the circulating blood is always present if the inflammation has gone on to suppuration.

The height to which the white blood-corpuscle count may rise varies according to the severity of the inflammatory process, the location of the infection, and the duration of time which has elapsed since the pyæmic process first began. If the inflammation has continued for some time, say three or four weeks or more, and the pus has been well walled off from the surrounding structures, the leucocytosis will not be as large as if the process were in its first stages. For example: Some months ago the writer counted the leucocytes of a patient who had a swelling in the right abdomen for twelve years. The white blood-count was only 11,000 leucocytes to the c.mm—a count too low to make a positive diagnosis of an abscess. Yet, when subsequently the patient was operated upon, the swelling was found to be composed of pus. Had this patient been seen early in the history of the case the leucocyte-count would in all probability have reached 20,000 or 30,000 white cells to the c.mm., and a correct diagnosis of the existing conditions made. Here, then, is an exception to the general rule of a well-marked leucocytosis with pyæmic processes, namely, when the inflammation has been of long standing and the pus well walled off from the surrounding structures.

There is also another exception which must here be noted. In some instances where the septic infection is most severe and rapidly causes fatal results no leucocytosis will occur as a consequence of the infection. An example of such exceptions is the rapidly fatal result of septic peritonitis where the patient is attacked suddenly and is quickly overcome by the disease. In these cases no increase of white blood-corpuscles will be found in the circulating blood.

Aside from these two exceptions we may adduce the general law, "that in all cases of septic infection accompanied by the formation of pus a well-marked leucocytosis results." By a well-marked leucocytosis we mean a white blood-count of about 15,000 or more leucocytes to the c.mm., the normal count in a human adult being considered 7500 white cells to the c.mm.

The practical value of this knowledge to the physician and veterinarian, once it is secured, cannot fail to impress itself upon your minds. For example: Many times the question arises, Does or does not this swelling contain pus? In the experience of the medical man that swelling may be deep in the abdomen, where a rigid abdominal wall and an absence of characteristic symptoms would make a diagnosis almost if not quite impossible without an estimation of leucocytes. In the experience of the veterinarian that swelling may be of such a nature as to baffle the diagnostician. Under such conditions the white blood-count will give a clue to the character of the inflammation and assist the clinician to a correct diagnosis. Again, repeated white blood-counts of cases of suspected septic infection will give positive evidence as to whether the process is extending and involving new areas of tissue or whether it is well localized and walled off from the surrounding structure. If the white blood-count increases from one day to the next the inflammation is spreading. If the count is stationary and there is neither an increase nor a diminution in the number of white cells the process is not involving new areas of tissue. If the leucocyte count diminishes from day to day the infective process is receding, recovery by resolution can be anticipated, and no operative interference is needed. Again, in the determination of the question, is the swelling cystic, hemorrhagic, serous or purulent, the leucocyte count is of great value. Cystic, serous, or small hemorrhagic swellings cause slight, if any, leucocytosis, while a pus-formation produces a large leucocytosis which differentiates it completely from the other varieties.

In inflammations involving structures which cannot be well examined by the ordinary means at our command, such as the chamber of the middle ear or the interior of the skull, a white blood-count is of great value in that it tells us whether the process is catarrhal and no pus has formed, or whether the infection is pyæmic and has gone on to suppuration. In the one case no operative interference is needed ; in the other no delay should be tolerated. The writer well remembers a case of otitis media in which the clinicians were in doubt for some time as to whether the process was catarrhal or suppurative. A white count was made, showing 21,000 leucocytes to the c.mm., and the diagnosis of otitis media with pus-formation was made. Later the pus burrowed through the tympanum and discharged from the external ear.

Likewise, in the differential diagnosis between osteomyelitis and inflammations of bone of a tubercular or malignant variety a white blood-count assists in arriving at a correct conclusion, since in osteomyelitis there is almost always a leucocytosis, while in bone inflammations of the other varieties no leucocytosis occurs. Such knowledge would be of great value to the veterinarian who has to do with so many bone inflammations.

In these and many other conditions not here mentioned, but which will doubtless suggest themselves to you, the counting of the white blood-corpuscles of the blood is of practical clinical value to the veterinarian as well as to the physician.

Before proceeding to give in detail the white blood-counts in certain pus-formations, the writer wishes to call your attention to the method pursued. At first thought one might think the process too complicated for the ordinary practitioner, but I feel sure that such fears are not well grounded. The red blood mixer of a Thoma-Zeiss hæmocytometer and a bottle of $\frac{1}{3}$ per cent. glacial acetic-acid solution in water are constantly carried in a hand-satchel. When a patient is seen in which a white blood-count is desired to be made the ear is punctured with a needle, the mixer is filled with the proper amount of blood and acetic-acid solution. The apparatus is then well shaken, so as to thoroughly mix the blood and acid, the mixer placed in the case and taken to the office, where the count is made with the microscope. This method does away with the necessity for carrying an instrument to the place where the patient lives, and is accurate, providing the apparatus is well shaken previous to counting. The writer has found no loss of cells as a result of one or two hours' delay previous to making the count, and believes no error from loss of cells arises even though the estimation is not made at once. When accustomed to the procedure it should not require over fifteen minutes to make the count.

Bearing in mind that the normal blood-count is 7500 leucocytes to the c.mm., the counts made under the following conditions, where pus was present, and had been removed, will have their full significance: Swelling in groin, 12,600, 21,000; rectal abscess, 13,000; swelling in thigh, 13,300; appendicitis, 14,000, 16,000, 17,000, 19,200, 20,000; abscess in Douglas' cul-de-sac, 15,000; stitch abscess following laparotomy, 15,000; felon on finger, 17,000; otitis media, 17,600, 21,000, 25,600; pelvic abscess, 20,600, 31,000; boil on neck, 21,000; gum-boil, 27,000; breast abscess, 32,500; abscess in parotid gland, 35,000.

While the writer is not a veterinarian and has made few leucocyte-counts in septic infections of animals, his experience with counts made in human beings suffering from pus-formations in all parts of the body has been so generally of one result, namely, a well-marked leucocytosis where pus is found, and an absence of leucocytosis where pus is absent, that he unhesitatingly recommends this procedure as a means of determining whether the doubtful inflammatory processes of lower animals are of a purulent or nonpurulent character.

COMMUNICABLE DISEASES OF DOMESTIC ANIMALS THAT MATERIALLY AFFECT THE LIVESTOCK INDUSTRY.[1]

By W. C. Rayen, M.D.C.,
NASHVILLE, TENN.

The time has come when communicable diseases among domestic animals in any community is a subject of paramount importance to livestock raisers and to those who have charge of the various sanitary boards for the protection of the public health. The communicable diseases of domestic animals are not only a source of great loss to the agricultural classes through the death of large numbers of animals, but where a specific disease affecting animals exists permanently it becomes necessary for those in charge of sanitary work to make stringent rules for the movement of animals from one section to another.

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[1] Read before the Tennessee Agricultural Association, January 4, 1900.

The mere fact that such methods become necessary in any community to protect other sections from having their herds infected at all times places a suspicion on such animals, and they will rarely ever bring the full market price. Where the movement of such animals is attempted (which can only be done for a definite purpose), the car in which they are shipped is branded "from an infected district," and when they are unloaded at the point of destination they are placed in pens branded in the same manner, and can be sold but for one purpose, thus placing the owner at a disadvantage with persons who offer animals from sections free from infection, that can be purchased with confidence.

By far the most important are the diseases affecting domestic animals that can be transmitted to the human family through the meat-supply and milk-supply, thereby communicating some of the most deadly diseases that affect mankind. It is now accepted as a positive fact that human and bovine tuberculosis (consumption) are identical, and can be transmitted to persons through the meat and milk; while other diseases render the meat of animals so affected unfit for human food. As an evidence that such conditions do exist, and that the dangers are not overdrawn, we point to the admirable system of meat-inspection inaugurated throughout the country by the United States Department of Agriculture, under the direction of the Bureau of Animal Industry, for the inspection of all meats intended for foreign shipment and for interstate trade; to the numerous municipal inspections inaugurated throughout the country for the inspection of animals slaughtered for local consumption. All such inspection will be found in charge of persons who are educated and specially trained for such work, thus assuring the purchasing public of the purity of the meat they buy. Under such circumstances it becomes necessary that every effort should be made to eradicate all communicable diseases that affect domestic animals, and to see that the infection of other sections is not brought to and communicated to our own herds. Our domestic animals are from time to time affected with the same diseases that affect animals in other sections, and I shall briefly notice a few of the more important affecting food-producing animals.

Tuberculosis. In this State, as far as can be ascertained, tuberculosis is confined among animals to the bovine almost entirely. While there may be some isolated cases in the rural districts, what we have is mostly confined to cattle in and around the cities and large towns. While there has never been an extended investigation of the subject, from what few tests with tuberculin that have been made by veterinarians of various sections of the State, it would seem that the percentage of animals suffering from this disease is much less than in many other sections of the country. The official reports from some States show that the percentage of tuberculosis among dairy cattle is quite large. We are of the opinion here that if the same facts could be collected the percentage found affected with the disease would be small. In fact, it is entirely possible that all cattle in rural sections would be found free from the disease. The value of such information would be a more extended market in which to dispose of surplus milch cows. Then, if it were possible for us to announce officially that our breeding herds were free from tuberculosis, can there be any doubt about the increased value of such animals?

In the States where the percentage of tuberculosis was found to be greatest, there the most determined effort is being made to eradicate the disease. Large numbers of reacting cattle are constantly being destroyed, thus making a market at full prices for sound dairy animals. The tuberculin-test as a means of diagnosis has given us a most reliable agent for the detection of the disease where a physical examination fails to reveal its presence. Where its use has been most extended the prejudice formerly entertained by many persons has gradually become dispelled, and in many sections where the disease is known to exist voluntary application is made to the authorities for the testing of herds. Where the subject is made most clear to the breeding public, there the pressing question is not, Shall tuberculosis among cattle be suppressed? but is, How shall tuberculosis among cattle be suppressed?

Up to the present time much has been accomplished in various sections with the view of eradicating the disease; many different methods of procedure have been adopted. At present what is known as the Danish system, under the leadership of Professor Bang, in a more or less modified form, seems to prevail in sections where the most practical results are being obtained; under this system, after herds have been tested, the reacting animals are separated, the premises are disinfected, the progeny of reacting mothers are separated at birth and raised either on pasteurized milk or milk from a cow that is known to be sound; animals in the most advanced stages of the disease are destroyed, and the carcass is made into fertilizer.

A system similar to this has been pursued by the State Live-stock Sanitary Board of Pennsylvania, where up to the present time 33,147 cattle have been investigated and tested, of which 4561, or 13.8 per cent., were tuberculous. They report the most gratifying results in eradicating the disease where the herds were thoroughly infected, and conclude with the following question: "Since tuberculosis has been exterminated on so many farms and in so many districts which were constantly growing more numerous, and since the inflow of tuberculous cattle has been cut off, are we not justified in looking forward to the time when the losses from this disease will be reduced to insignificant proportions?"

The States of Pennsylvania, Illinois, and Kansas now have direct statutes prohibiting dairy-cattle from being brought into the State without a certificate of the tuberculin-test, and most of the New England States regulate the entrance of dairy cattle by the rules of the various livestock sanitary boards. The fact that we are not at the present time seriously affected with this disease is no reason why we should not take every possible precaution to repress its further advance. The statistics of all countries have shown that where the disease once exists its progress is certain unless positive methods are adopted for its extermination.

Texas Fever. It is in this disease, of all others, that in various ways the agricultural population of this State are most interested, and from which the annual loss, in the opinion of those who have given the subject the most attention, has never been approximately estimated. As is well known, the direct loss by death alone is enormous, and when it is considered that the market value of all cattle is more or less affected, from the fact that a considerable district within the State is regarded as permanently affected with the disease, it can be plainly seen that the entire loss becomes exceedingly great. Then, again, our condition is such that there is very little encouragement for farmers to bring in other and larger animals for the improvement of our herds, through which cause great gain might be made in the amount we receive from the production of beef animals. The present supply of beef-producing cattle throughout the State is largely of no particular variety, is usually small in size, and mostly originates in the vast range lands of the States South; they have in the past been driven North during what is known as the "open season." These cattle require more time and more feed for their development than cattle of the more prominent beef-producing varieties. Large numbers of these cattle come from the section that may be truly termed the permanently infected district of Texas fever, for they invariably carry the microörganism in their circulation that produces the disease among susceptible cattle. From these facts, which may be said to be accepted by those who have given the subject the most attention, it becomes imperative that every person who is interested in agriculture should become thoroughly conversant with every feature of the question in order that action may be taken with the view of eventually eradicating the disease from the State.

Much information in regard to Texas fever has already been obtained through the efforts of the United States Department of Agriculture and the various experimental stations throughout the country and by those who have been engaged in field work in the quarantine service. It is shown that the disease is caused by a blood-destroying microörganism. It is known that this microorganism is transmitted from cattle to cattle through the agency of a specific tick (*Boophilus bovis*). There is, however, a question that has never been established by experiments or observation that might have an important bearing on the subject in this State. The primary origin of the microörganism that causes Texas fever among cattle has not been positively located. Considerable evidence has accumulated that would seem to indicate that all ticks (*Boophilis bovis*) do not carry the specific micro-parasite that causes Texas fever, and are therefore incapable of infecting susceptible cattle. Such a fact, if established, would without a doubt very materially modify existing conditions in this State.

Quarter-evil, *Black Quarter*, or *Black Leg*. This disease, characterized by the development of an extensive inflammatory tumor in some part of the body, has caused great loss among cattle in the States west of the Mississippi River, and has made its appearance in some localities in this State. It is a disease that affects young animals in most cases. The susceptibility of cattle seems to diminish greatly after two years of age. It was at one time a universally accepted opinion that quarter-evil was mainly a disease of forced or overfeeding ; this opinion has been rightly abandoned, and it is now certain that the disease often attacks animals in poor or medium condition ; the disease is caused by a specific microorganism—the bacillus of quarter-evil ; it is a strictly infectious disease and is confined to certain farms and localities. All treatment is doubtful ; prevention is the only course to pursue where the disease makes its appearance; this is accomplished through vaccination with a vaccine now prepared and furnished free of charge to local authorities by the United States Department of Agriculture.

Hog-cholera is a widely disseminated disease that annually causes great loss to the livestock industry. The disease has been under investigation for many years, and, while the cause is well understood, no curative remedy has been discovered that is of practical value. It is a disease caused by a specific microörganism, and it is the opinion of prominent authorities that it can be largely controlled through a well-organized system of sanitary science and police, through which swine epizoötics would soon cease to be the cause of serious loss. While it might not be possible to stamp out this disease on account of the conditions that prevail in this State, the loss can be so much reduced as to be of little moment.

The so-called cures so extensively advertised have proved ineffectual in a series of tests made by various experiment stations throughout the country. By what is known as serum-therapy, the United States Department of Agriculture has for the past two or three years been making practical or field experiments, and from the reports the result seems to be most gratifying.

In the management of all communicable diseases among domestic animals the lines of action followed according to the well-defined rules of veterinary sanitary science and police when intelligently administered have at all times obtained the most satisfactory results. Every fatal contagion or infectious disease that affects domestic animals is caused by a specific microörganism that in each case has a life-history of its own, and all measures for the prevention and restriction of such diseases must be based on the characteristics of each particular parasite.

Animals once affected with such diseases rarely ever thrive if recovery should occur. From an economic point of view prevention and restriction through the application of rational methods is the intelligent course to pursue. The public health demands the purity of animals food-products, and the public wealth requires that animals should be kept free from the communicable diseases that so materially affect the profits obtained through the livestock industry.

AMERICAN *versus* EUROPEAN INSPECTION.[1]

BY A. T. PETERS, M.R.C.V.S.,
LINCOLN, NEBRASKA.

I THANK you for the kind invitation to speak to you on such a broad and interesting subject as that of meat-inspection, and will, therefore, try to say a few words on this vast subject. There is probably no one more qualified to point out its virtues and its faults than this honorable body gathered here to-night; but if you will bear with me I will compare our system of meat-inspection with that of Europe, and especially Germany, which I happen to know something about, and also state the rapid improvement that has been made in recent years in this country in this line.

Meat-inspection in this country has only a very recent history, but one that we can be proud of. In the older countries of Europe meat-inspection has been in vogue for a long time, but it is only in the last fifteen years that it has received a thorough reorganization all over the world. In reality it first took a steady boom in the old country when pathology became established on a more thorough basis, and with our increased knowledge of contagious and infectious diseases it became more defined; for instance, the disease, tuberculosis, in years gone by was diagnosed as many different diseases, and it took many years to clearly demonstrate its infectiousness. Any one who is especially interested in meat-inspection, and especially in pathology, would be surprised to read the history of tuberculosis and to see in what state of affairs pathology was before this disease was thoroughly demonstrated. We owe this to Robert Koch, who demonstrated the infection beyond a doubt. But before Koch it was our veterinary profession that pointed out very clearly the infectiousness of tuberculosis. It took a man with a great deal of courage and personality to defy the medical men of that age and to draw attention to their mistaken methods of investigation. This man was Professor Gerlach, who is well known to all of us. He was the first one to draw attention to the fact that tuberculosis is a distinct infectious disease; and later Dr. Robert Koch proved beyond the shadow of a doubt that tuberculosis is produced by a bacterium; and after thoroughly demonstrating this on many hundreds of animals, it still took time for such men as Virchow to classify the many diseases which were confounded with tuberculosis; and during this time the rapid strides that were made in the perfection of the microscope and in the technique of bacteriology aided our profession to thoroughly become guardian of the public health.

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[1] Read before the Missouri Valley Veterinary Association.

The inspection of meat is such a large subject and one of such great importance that any one who is connected with the performance of this duty may certainly be called a benefactor to the community. I will admit that it has not been established very long, but when we consider how short a period meat-inspection has been in vogue in this country the success is gratifying; for it is only a short time ago that positions now held by the best qualified men were in the hands of politicians who were ridiculed by all scientific men. It is surprising to those who have observed the short space of time in which inspection of meat has outgrown the prejudice of the people, for we can certainly say that since the civil service has been established these very important positions are held by the best men in the country; and probably there is no branch of the veterinary profession which has made such rapid progress and which has been so appreciated by the people as this one branch.

It would certainly be interesting to many people to know how this large organization of men is systematically working and accomplishing so much good to the country, both from an economical and sanitary stand-point. I have omitted the statistical data, which can be found in the *Year-book of the United States Department of Agriculture* for 1898, which exhibits interesting data on this subject. I can safely say, without any malice toward the European inspectors, that they are not as well organized, nor could they perform the vast amount of work that is being performed by our inspectors in this country. We read to-day a great deal about meat-inspection, and especially from European sources, but allow me to tell you that it must be admitted—and would be privately admitted by the best men in Europe—that our corps of inspection is as efficient and our system of inspection as perfect as any in the world. With the system that prevails in Europe we could never in this busy country of ours complete the examination of the hundreds of thousands of animals that are being inspected. We must certainly admit that they have some very prominent men in this branch of work—such men as Ostertag, Simmons, Long, Fischoeder, and ever so many others. In Europe each province, district, and locality has supervision over its own inspectors, and the chief is not directly responsible for his subordinates. The entire corps of inspectors—no matter if they are engaged in an abattoir in the southern part of Germany or in the northern part of Prussia—are only responsible to their community and not responsible to the Federal Government. For this reason they have special periodicals on municipal meat-inspection which are wholly supported by inspectors of the different abattoirs, who contribute papers of various kinds. This is not the case in this country. The meat-inspectors are responsible to the chiefs of the Federal Government, and for this reason they have not published as many scientific papers on the diseases found on the floors of the abattoirs. These things probably could be remedied by a journal in the English language, similar to that published by Professor Ostertag, giving short descriptions of some of the rare cases seen on the floors of the abattoirs, in this way keeping the interest of the inspectors alive. But I suppose this is not at all practical under the present system ; but some method should be adopted by the Federal Government of stimulating interest in writing up the rare cases found by the inspectors ; and I believe there is no better way than to have either a separate organ for this purpose or space in some of the journals that are now in existence, exclusively for the use of meat-inspectors, and in which the social feature as well as the professional may be represented.

In conclusion I may say that the most severe test that meat-inspection has been put to was probably that during our late war with Spain, when the newspapers contained so many editorials on this subject. All that can be said is that it stood the test, and that those who were inclined to ridicule our methods of inspection must admit that it is as good as any country can produce ; and in closing I wish to say to those members who are engaged in this profession that with their zealous efforts we can bring it up to a standard that will be far superior to that of any other country.

PARTURIENT PARESIS.[1]

By A. H. Hartwig, M.D.C.,
WATERTOWN, WIS.

Since our last meeting, held at Madison, at which I was requested to take up the subject of parturient apoplexy, or, as it has been recently termed, parturient paresis, I have watched with greater interest than ever the various theories advanced as to the pathology and therapeutical treatment of this disease.

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[1] Read before the meeting of the Wisconsin Society of Veterinary Graduates, September, 899.

Among the most popular of the day is that of Professor J. Schmidt, but as we really do not know the true cause of this disease, the Schmidt theory would first appear as an empirical one. Though a little skeptical on this account, and of previous disappointments, I have concluded to give it a trial, and report the following cases:

No. 1 (fatal). I was called to a five-year-old Durham cow which was in fair flesh, but a good milker. I found her in her stall at 4 P.M., lying on her sternum and not entirely inattentive to her surroundings, but would partake of food occasionally. I was informed that she had given birth to a calf the previous day. She would attempt to rise, but was unable. After a formal examination I concluded that she had a mild attack of parturient paresis, and at once applied the potassium iodide infusion according to directions, relieving her of the contents of the rectum, which was apparently normal, and, placing her in a comfortable position, I left, giving orders to apply massage. On my arrival the next morning I found her much worse, the neck arched to one side, and groaning terribly. I concluded to repeat the dose, which I did, but not quite as strong a solution. I returned about six hours later, but saw no improvement. I then injected stimulants hypodermatically, and asked the owner to report in the morning, when about eight o'clock he arrived with the hide, stating that she had died during the night.

No. 2 (recovered). This was an eight-year-old cow of native stock. I was called at ten o'clock in the evening, and found her in a basement barn with her head turned to one side and occasionally stretching out all four limbs and groaning. She was entirely unconscious, temperature 98½°; though the weather was warm her skin was cold and shrivelled, her mouth was cold and the tongue paralyzed; the eyes were dim, and when touched with the finger she would not attempt to close them. When examining the udder I found a slight swelling in one quarter. Upon inquiring how long since the cow had come in, I was informed that her calf was eight weeks old, which was shown to me. I could not doubt the man's word, as I really believe he was sincere in his statement. You can imagine my astonishment to see typical symptoms of parturient paresis eight weeks after parturition. Not trusting my first conclusion, I again made a thorough examination, with the same results. On account of the existing symptoms of mastitis I was not warranted to apply the potassium iodide infusion, and advised to apply friction to the exterior by means of straw wisps, which was done; also stimulating agents were applied both externally and internally, and the patient wrapped in warm blankets. The udder was frequently immersed in hot water during the night, also light massage was applied, and the udder relieved of its contents as often as possible. On my arrival the next morning my patient was resting easy and appeared much brighter. The next day she got up, and has ever since made a slow recovery, and is now giving a normal flow of milk. I am not surprised at her recovery, but have never heard of such a case eight weeks after parturition, and therefore bring it to your notice for discussion.

No. 3 (recovered). This was a very fat, short-horned cow, six years old; had aborted the previous season, and was dry for six months prior to her period of gestation. The first symptoms of the disease were noticed about eight hours before my arrival at the place, and she was suffering with a very severe attack. I informed the owner that the case was hopeless in my opinion, but was willing to try and help her the best I could. One hundred and fifty grains of the potassium iodide were dissolved and infused according to directions; massage applied, but no caffeine or other stimulants. This was twelve o'clock at night. I returned to the place at nine o'clock the next morning, and was informed that the cow was up. Upon reaching the stable I found her standing at her manger eating and occasionally bellowing for her calf. She soon regained her flow of milk and is again at the head of the herd.

No. 4 (recovered). Was a six-year-old red cow, not very fat, with a mild attack. I was called two hours after its first appearance. Potassium iodide was administered as before; no stimulants. The animal made a nice recovery, and was up in six hours.

No. 5 (recovered). A medium-sized, well-fed cow, seven years old, with an attack of medium severity; treated with the potassium iodide; no stimulants; was up after twelve hours; did not regain her regular flow of milk until several weeks later.

No. 6 (fatal). An eight-year-old cow in fair condition, not fat, but a good milker, was found in a pasture eighteen hours after the first symptoms were manifest; was completely paralyzed; her general appearance resembled that of a corpse; skin and extremities very cold, eyes wide open, head and legs stretched from her; she was not able to stir, but would utter loud, painful groans. She was brought into shelter, where we made her as comfortable as possible. Potassium iodide with mild stimulants were applied. After six hours she was resting easier, which was late at night. Upon my arrival the next morning I found her in an orchard near by, picking an occasional mouthful of grass, but was very weak.

The stimulants were kept up for several days, and she was doing nicely. When I called four days after she had a normal appetite and appeared well, but had no milk. This remained the same until the seventh day, when she stopped eating and drinking, and died several hours after. I had no opportunity for an autopsy.

No. 7. A very fat Holstein cow seven years old. I was called five hours after the trouble began. The attack was quite a severe one. Potassium iodide infused, no stimulants. The patient was up in nine hours, and made a rapid recovery.

In view of the above facts we must conclude that the potassium iodide treatment is a vast improvement over previous results, and with careful observations and experiments we can no doubt improve on it. I will add that in Case No. 1 the massage was not applied regularly as directed, which might have made some difference in the termination of the case. I have also observed that thorough cleanliness and sterilization of the infusion apparatus must be maintained. Care should also be taken that the water used is pure and thoroughly sterilized in a clean vessel, as our clients are mosly farmers who are not, as a rule, very particular in this respect.

THE VETERINARIAN A FACTOR IN POLITICS.[1]

By T. B. Newby, V. S.,
PANA, ILLINOIS.

As the present century opens or closes, whichever arm of the argument you wish to accept, it finds us living in an age of ever- and rapidly-changing conditions—an age, indeed, in which the sluggard is remembered only in name; when the successful man keeps abreast of the tide and does not wait for that mighty current to catch him in its drift, until he awakes to activity and views his lost opportunity; a time when the struggle for political supremacy is strained to the last point of human achievements. And he must be both a strategist and tactician to successfully reach the goal. The politician of the old school now rarely attempts an issue by being next to the hearts of the people as a mass. With class arrayed against class, it does not require an Elijah or a Daniel to see that this condition forebodes no good to our nation.

I believe here has been the cause of the veterinary profession wandering around in the wilderness so many years, struggling for recognition ; we were more or less disjointed with the times. We presented just and conservative petitions to the lawmaking bodies, and believed upon their merit, and the men we had elected to office would successfully do the rest.

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[1] Read before the Illinois State Veterinary Medical Association, February 21, 1900.

There were always some men in the profession doing their best and spending their money as well to consummate the attempted issues, while others like a team unable to move their load would give a little pull and stop; and some do much worse at times by trying to block the wheels entirely.

Doubtless oftentimes the executive never knew from personal acquaintance or correspondence that there were any veterinary interests in his district that he was supposed to legislate in favor of; if he did, as often was the case, he failed to render unto Cæsar the things that were Cæsar's.

Particularly is this true of the army bill. As American-born citizens taught to reverence our flag as one of the fundamental principles of manhood from our very birth, emblazoned with our nation's history, emphasized just now when the entire world is looking upon us with wonder and admiration at the valor of American arms in foreign lands and of our navy upon the seas, these inspiring thoughts of loyalty intensify our feelings with odium, chagrin, and mortification, when we remember that the much-needed rank that our profession symbolizes has been ingloriously declined.

Are our aspirations in our proud army to be nothing more than in the dark ages? Is our profession in the army to be relegated far behind that of less successful or chivalrous nations? This is the question for us to settle. After repeated travesties at justice by the United States Congress our efforts have amounted to simply this, viz., a veterinarian appointed under the act of Congress, approved March 2, 1899, is not a commissioned officer or an enlisted man, but a civil employé. Compare this, if you will, with the other armies of the civilized world. In most of them the veterinarian enters the army as a lieutenant, and by promotion may become a veterinary colonel or an intermediate rank. It is estimated in the German army the veterinarian saves twenty times his cost. And doubtless if such an expediency was adopted in the American army and the veterinarian was given like authority in supplying and equipping in common with his other duties, more than this might be saved our government. With this in view it strikes me that the citizen and the tax-payer should be more interested than the veterinarian. The question may be asked, What is our duty as to political matters involving our interests in general? Am I admonishing you to become politicians? No, not in the special sense of its acceptance beyond the incentive of self-preservation. If I was, I should say few if any callings are endowed with so many privileges tributary to influence through extensive acquaintance, and subsequently numerous friends, which he might use to advance political or social ambition if he so elects; but, this is not the objective thought we desire to present. Sentiment based on influence is a vain thing to build on; but rather to be established is the endowment of a profession noble in its calling, so upbuilding in its every duty to society that time cannot mar its inherency.

It is congratulating to know that our profession is rapidly developing this desired condition, and let us not tire in well doing until we take our places as one of the first sciences of the land established in every branch of commerce or concentrated society.

To accomplish this means hard individual work, characterized by thoroughness, dignity, and self-respect, which emphasize and promote character and endow one with reserve intellectual power such as Daniel Webster possessed when he made that instantaneous reply to Robert Y. Hayne, of South Carolina, concerning the doctrine of nullification, in 1830, or the strategy that Dewey possessed when he created that breakfast story while destroying the Spanish fleet in Manilla Bay and wanted to take an inventory of his ammunition.

Legitimate tact judiciously used to impress the thinking people of the best merits of the profession is to be commended. Men of sense never confuse issues or choose the wrong time for their purpose. It is no uncommon thing to see men of high intellectual attainments incapable of self-support, because they lack certain qualifications of imparting their knowledge. Wisdom is useful so far as capable of being applied.

There is to-day vast unhidden possibilities for the ambitious and resourceful veterinarian. Under the plan of the American institutions men rapidly climb the ladder of fame because it is one of the possibilities for all. And that applies to us, and it is our duty to grasp the spirit, develop our latent faculties, and that which belongs to us we will have, because the executive officers and political assemblies cannot then help recognizing us as public benefactors and our social position.

As it now exists it is a political matter, and whatever we receive we must fight for. As in the language of David Harum: there is many a hole in a ten-foot ladder.

ADDRESS TO THE VETERINARY PROFESSION OF THE STATE OF NEW JERSEY.[1]

BY WILLIAM HERBERT LOWE, D.V.S.,
PATERSON, N. J.

Now, in the dawn of the twentieth century, we witness the beginning of a new epoch in the history of the progress of veterinary science in the State of New Jersey. It is not necessary to dwell upon the early struggles of individuals and of societies for existence and life during the era now at a close, but let us pause for a moment.

Heretofore the profession of our State has been divided up into various factions and societies, each trying to accomplish what it could. To-day these societies are merged and amalgamated into one strong State organization—the Veterinary Medical Association of New Jersey—truly representative of the profession of the State. This means one strong State organization instead of two or three societies more dead than alive; this means unity, harmony, and strength. Now we may expect to see a steady, healthy growth in veterinary science and art, with a consequent benefit to man and beast.

To greet the veterinary societies of the State as an amalgamated association, and to welcome the officers and members of each, is a privilege I esteem very highly.

This, I believe, is not only the largest, but the most earnest and truly representative gathering of members of the veterinary profession that has ever assembled within the confines of the State, which in itself speaks louder than language that the profession is stirred as never before in her history.

It has been said that I was, like the commercial men of the day, organizing a "veterinary trust." I think veterinarians have enough trusting to do without any organizing. However, I am willing for it to be called a "veterinary trust" so long as we can have unity, harmony, and strength. Three months ago some of the oldest and wisest men in the profession shook their heads and said that it was impossible to unite and organize the veterinary factions in this State. What seemed impossible so short a time ago is now an accomplished fact.

It was thought wise to build upon the old foundation laid many years ago. I refer to the Veterinary Medical Association of New

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[1] Delivered January 11, 1900, on the occasion of the veterinary societies of the State merging with the Veterinary Medical Association of New Jersey.

Jersey, organized in the year 1884 and incorporated in 1885 under an act of the Legislature for the promotion of veterinary science and art. This act was repealed in 1899, so no more veterinary societies can be incorporated under it, and inasmuch as the other two incorporated societies have to-day merged with the original association, that leaves the Veterinary Medical Association of New Jersey the only chartered veterinary society in the State and does away with the provision for any more societies being incorporated, which is a good thing.

Some of the members of the old association did not have the advantage of collegiate and scientific training of the veterinarian of to-day, but many of those men deserve a great deal of credit for what they did accomplish with the limited means at their command. I want to say to the profession here assembled that I have a great deal of respect for many of these men. I have known some of them, such as the lamented Dr. Dustan, of Morristown, who had qualities of mind and heart that more than compensated for lack of collegiate training.

The large number of candidates for membership at this meeting is phenomenal. I have had the honor of presenting the names of fifty-two practitioners for membership, most of whom have already paid their initiation fees. Fifty-two new members certainly ought to throw new life into the various branches of the association's work. I predict that the Veterinary Medical Association of New Jersey can be made one of the, if not the, strongest and best veterinary society in this whole United States. There is plenty of good timber in New Jersey. It will not do to let Dr. Hoskins have all his own way over in Pennsylvania.

I would like to see this association inclusive rather than exclusive. Of course, all will not have equal education or equal ability. This is not found even among the graduates of any particular college or university, but all the more reason for and importance of society attachment.

The advantages of a proper State organization are many. First, it gives practitioners an opportunity of getting acquainted with each other, and tends to create a fraternal feeling. Of course, if a man has not character he will do mean and contemptible things, whether he is in the society or out. In the society, however, he can be disciplined and brought under moral restraint; whereas, if outside nothing can be done with him unless he directly violates a law of his city or of the State.

In the second place, the State Association is of great importance in the promotion of scientific advancement, which every truly professional man is interested in. There is not a veterinarian in this gathering but who knows certain things that would be of advantage to some other veterinarian; and then, again, this some other veterinarian knows things that his brother does not know. There should be an exchange of experiences, opinions, etc. Cases should be reported; not those only that recover, but more particularly those that do not recover. The practitioner's opinion as to why cases did not recover should be given. Post-mortem examinations should be the rule, and not the exception, if the profession is to advance in pathology and in the scientific treatment of disease.

The examination of horses as to soundness is a subject that this association could profitably take up, and one that every practitioner would take an interest in and one that every veterinarian would profit by—there seems to be such a difference of opinion among practitioners as to what constitutes soundness and what constitutes unsoundness.

We have here with us a veterinarian who has given a great deal of special study and thought to normal and pathological horseshoeing, who could instruct and interest us. I refer to our friend Dr. McDonough. There are others who perhaps could add to Dr. McDonough's experience, and so on.

Other members would be better qualified to discuss dental and general surgical manipulations and operations. In this connection I would like to say I can see no good reason why we cannot have surgical clinics at our meetings; they are already becoming quite a feature at the meetings of the National Association.

Sanitary medicine, State medicine, veterinary inspection of the meat and milk food-supply, and a proper veterinary inspection of the animals that produce the supply are questions that concern the health as well as the wealth of the people of the State, and it is a body of this kind that is essentially qualified to study and deal with the many complex problems that are connected with this important subject. I could go on indefinitely indicating scientific work that we as an organization must take account of, but I must pass on to another advantage that a strong State organization is to the profession and to the public alike. I refer to veterinary legislation. We can only expect to get such legislation as the profession should have by being united and by earnest and persistent effort of the association as a body as of its members individually. Our veterinary law passed in 1899 will have to be amended. This can be done if we stand together. We should have a State Board of Veterinary Medical Examiners in this State similar to the boards in Pennsylvania and New York. It is a notorious fact that men who cannot pass before these boards come over to New Jersey and set themselves up as veterinarians. Is the profession going to stand quietly by and allow New Jersey to become the "dumping-ground" of professional incompetents? I think not.

There is an illimitable amount of professional work for the veterinarian who has the true interests of the profession at heart. The field is ever broadening; the extent to which the health and wealth of the people depend upon the application of veterinary science is becoming more appreciated day by day. I see a great future for the Veterinary Medical Association of New Jersey as now constituted. May she ever be true to herself and to the interests of the people of our beloved State.

REVIEW OF CONTAGIOUS ABORTION.[1]

By S. P. Smith,
STUDENT, CHICAGO, ILL.

Cases of animals affected with this disease were recorded as early as the third century B.C., and since that date it has become slowly disseminated, and to-day it exists quite extensively throughout the civilized continents. In our State of New York alone this malady is given the credit of being the etiology of an annual loss of several million dollars worth of livestock and dairy products.

The aggregated statistics and observations of the past show that the bovine species is the most susceptible and the one most often to contract this disease, though it is by no means rare in the equine and ovine species, and occasionally found existing in the canine and feline families. Our present knowledge of the etiology and pathology of the disease is indicative of its being analogous to that of contagious abortion existing in the human family, and no doubt scientists in the near future will clearly demonstrate this valuable point, thus adding one more infectious disease to the list of contagious diseases that are in common with the human and with the domestic animals.

Prior to 1895 varied and extensive experiments were performed which demonstrated and confirmed its infectious and transmissible properties. By introducing vaginal exudates and fœtal membranes of infected animals into the vagina of healthy, pregnant animals with few exceptions produces abortion in due time.

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[1] Read before the Students' Society of the McKillip Veterinary College.

In view of its infectious nature the French Minister of Agriculture in 1885 authorized M. Nocard to make pathological and bacteriological researches to discover its exact etiology. After spending much time in careful laboratory work on the tissues of the uterus and fœtus of infected animals, he concluded that it was due to a specific pathogenic microörganism localized in the fœtus and its adnexas, though the two germs which he isolated from between the uterus and its embryo—one a micrococcus, the other a bacillus—proved not to be the specific organism of the disease ; but his labor was not all in vain, as he very accurately described the clinical symptoms and pathological anatomy of the disease. His expended energies opened the way and stimulated other scientists to make further bacteriological researches.

Ten years later Bang and Stribalt, of Copenhagen, took up the work anew. They selected for their material to work upon a cow from an infected herd, seven months in gestation and manifesting all the clinical symptoms of the disease. An autopsy was made, and the uterus containing the fœtus was removed to the laboratory. Upon microscopical examination of the straw-colored exudate in the uterus, large numbers of small, isolated, immobile bacilli were revealed. By isolating and experimenting with this bacillus, it proved to be the specific etiology of contagious abortion. These bacilli are about the same length as the bacillus malli, but are of an oval shape, resembling the hog-cholera bacilli, except being very much smaller, requiring a high-power objective to detect them ; they contain from three to four granules, which take a deeper stain than the rest of the germ, presenting an unevenly stained appearance. They stain best with aniline, as the common stains do not penetrate. They require a special culture media, though making a faint growth in blood serum and glycerin-agar. In these media the germs become diffused through the media, giving them a cloudy appearance, and by the fifth day this growth granulates, forming a deposit in the bottom of the tube. Stribalt's special serum gelatin-agar media is most favorable for proliferation. In three days' time this media forms a zone in the tube 5 mm. below the surface of the media, and 12 mm. in thickness, thus showing that it is neither an aërobic nor an anaërobic, but occupying an intermediate position, requiring 20 per cent. of the normal amount of oxygen supplied by the atmospheric air. In this respect it differs from all other known microörganisms.

Its pathological effect on laboratory animals is very marked. Pregnant guinea-pigs treated subcutaneously with 1 c.c. of a four-day culture of the bacilli causes them to abort in three to five days after injection. Rabbits thus treated with cultures of the germ show all the clinical and pòst-mortem symptoms of rabbits infected with the hog-cholera bacilli, producing death in about 75 per cent. This bacilli belongs to the same class as the hog-cholera bacilli, and they resemble each other very closely in their morphology and biological characteristics. Cultures of the bacilli may be subjected to a freezing temperature for seven months and retain all of their pathogenic properties. Pure virulent cultures have been isolated from a mummified fœtus retained in the uterus nine months after death.

Pregnant cows receiving pure cultures of the germ in the vagina give premature birth to their fœtus in about ten weeks after receiving the injection, but the period of incubation has a wide variation, and the time corresponds directly with the susceptibility and stage of gestation of the animal, though the primipara succumb most readily to its effects. Some infected females will carry their fœtus to full term, giving birth to a small, inferior offspring, which usually dies in a short time after birth from diarrhœa and enteritis, in which pathological process the specific bacilli are involved.

On an infected farm it may coexist in the pregnant females of the different species present, and can be readily transferred from one species to another by the use of the infected vaginal exudates. Ewes in the period of gestation treated hypodermatically with 18 c.c. of a pure culture produces pyrexia, dyspnœa, anorexia, and about the twelfth day abortion. Intravenous inoculation into pregnant mares causes them to abort on an average of about the twenty-eighth day.

The bacilli with some difficulty can be isolated from the fœtus and uterine discharge of all abortions caused by infection with this specific microörganisms.

The pathological anatomy is principally confined to the generative organs. The serous membranes surrounding the uterus and organism is normal, and the os uteri is hermetically sealed before parturition. There is catarrh of the uterine walls, accompanied with an abundant straw-colored, odorless, viscid, mucous exudate, of an alkaline reaction, between the mucous membrane of the uterus and chorion. This, in circumscribed areas, is of a gelatinous consistency. Between the chorion and alantoid exists a clear, gelatinous fluid, mixed with membranous particles. The alantoid fluid holds in suspension small clots, while the amniotic fluid is normal. The umbilical cord of the fœtus is œdematous, accompanied with congestion of the intestines and ascites.

The germ is present in all of these pathological lesions and in the blood of the fœtus. Therefore, we can consider epizoötic abortion a specific uterine catarrh, due to a specific microörganism. The uterine discharges accompanying this disease being odorless, differentiates it from metritis.

Males become infected by serving infected females, causing a specific urethritis, which is of a chronic nature and presents no external symptoms.

The pathogenesis of this disease has not been closely investigated, though it is generally accepted that the most common way it gains the animal economy is through the medium of the vagina from the infected floors, walls, and litter of stables, tails of infected animals in adjoining stalls, and fences, trees, forage with which infected animals have come in contact may also be the source of infection. The most active agent in disseminating the disease is the males used for breeding large numbers of females, especially females coming from different herds. The vagina is infected by the male with the bacilli at the time of sexual intercourse, and the organisms may pass through the os uteri with the spermatozoa; but when infection takes place through the vagina of pregnant animals it must necessarily be transferred to the uterus through the medium of the circulatory system, becoming localized in the uterus and its contents; this being the most favorable media in the animal body, and the imperfect circulation of these parts, favors its localization. The dairy herds are most prone to the disease, and perhaps due to the impaired vitality of the system and the development of the lacteal organs, through generations of breeding, to the expense of the generative organs. As yet nothing is known of infection taking place through the respiratory and alimentary tracts, though it may readily gain the circulation through abrasions of the skin.

The clinical symptoms resemble very closely those of normal parturition, except the tumefaction of the vulva and udder takes place in a much shorter time, and is accompanied by a vaginal discharge. The majority of abortions take place about the seventh month of gestation, though it may occur at any stage of gestation. The fœtus is usually alive at the time of parturition, but dies in a short time after birth. Cows once infected carry their fœtuses a few weeks later in the period of gestation each succeeding year, until the third or fourth year they have acquired immunity and still may remain as a source of infection to other males and females.

The prophylactic treatment is of most importance in combating this disease: strict isolation of infected animals, followed by antiseptic irrigations to the generative organs, and their former habitat thoroughly cleansed and disinfected. Exposed females have been carried to the point of normal parturition by repeated hypodermatic injections of a weak carbolic acid solution. The more recent French treatment promises better results and consists of injections into the muscular tissue every third or fourth day with 10 c.c. of a solution composed of one part turpenol and nine parts olive oil. This treatment is begun in suspected cases about the seventh month of gestation. Another prophylactic agent which has yet to prove its efficiency by experimentation is the antitoxin of contagious abortion made from pure cultures of the bacilli by attenuating their virulence with heat.

STATE WORK WITH INFECTIOUS DISEASES OF ANIMALS.[1]

By M. H. Reynolds, M.D., V.M.
ST. ANTHONY PARK, MINN.

Mr. President and Gentlemen of the State Agricultural Society: There are certain things which I wish to accomplish in the presentation of this paper. I wish to interest all members of the State Agricultural Society and the Minnesota Stock Breeders' Association in the work of the State Board of Health, and particularly in the work of the veterinary department. It is your work, and done mainly for your business interests. Mistakes in this work may cost your interests hundreds of thousands of dollars. Good work may save as much. The success of the veterinary sanitation depends on the support of stockmen and veterinarians. It is important that those most interested should be informed concerning the work to be done and methods of accomplishing it.

The Minnesota State Board of Health consists of nine members, secretary and general executive officer, bacteriological laboratory, and veterinary department.

Minnesota is credited with having one of the best if not the best State law relating to infectious diseases of domestic animals. There are certain points in this law which I wish to present in order that our work may be well understood.

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[1] Presented at the annual meeting of the State Agricultural Society, at St. Paul, January 10 and 11, 1900.

Section 1, Chapter 233, gives authority to the State and various local boards to take such steps as they may deem necessary to control infectious diseases among domestic animals. These boards are given authority to regulate or prohibit the arrival in or departure from this State and the towns, villages, and cities thereof of exposed or infected animals.

Section 2 reads as follows :

> "Any person who knows of, or has reason to suspect, the existence of any contagious or infectious disease in any domestic animal, shall forthwith give notice thereof to the local board of health of the town, village, or city where such animal is kept. Within twenty-four (24) hours after any local board of health shall have received notice that any domestic animal is infected with any such disease, or has been exposed thereto, it shall give notice thereof in writing to the State Board of Health."

Section 4 provides that no animal shall be killed by any of these boards until it has been adjudged to be affected with a contagious or infectious disease, either by a physician or veterinary surgeon properly selected and employed. The State Board is given authority to kill any animal which has been exposed, although not at that time affected with the disease, if in the judgment of this board it is necessary to do so.

Section 5 provides for the owner's protection, giving him authority under certain conditions to protect, demand post-mortem by three experts, and the privilege of appraisal if the animal is found to be free from infectious diseases.

Section 7 provides that local boards must carry out and enforce orders and regulations of the State Board. It also gives the State Board authority to require two or more boards to act together when desirable.

Section 9 provides penalties. Suit may be brought in a justice's court. Fine may not be less than $25 nor more than $100, or imprisonment not less than thirty nor more than ninety days. This section also provides that any member of the local board of health neglecting or refusing to carry into effect the provisions of this law or the rules or regulations made by the State Board of Health shall be guilty of a misdemeanor punishable by a fine of not less than $25 nor more than $100, and each day's neglect or refusal constitutes a separate or independent misdemeanor.

Section 11 authorizes private owners whose stocks are not affected to establish private quarantine in self-defense during the prevalence of an infectious disease among domestic animals, and makes such private quarantine legal. Permit me to explain at this point, as illustrating my thought, that members of this and similar associations should be personally interested and informed concerning this work. Section 11 was suggested by the Secretary of the Stock Breeders' Association, and I consider this one of the best points in the new law.

Section 1, Chapter 47, reads as follows :

> "It shall be the duty of the owner, or of any other person having in charge any swine that have died of any disease, immediately upon the fact of such death by disease coming to his knowledge, to bury the same at least three (3) feet below the surface of the ground, or burn the same so that the carcass is consumed. No person shall sell, give away, or offer for sale any swine that have died of any disease or have been killed on account of any disease. No person shall convey upon or along any public highway, or other public ground, or any private land, except his own, any diseased swine, or swine that have died of or have been slaughtered on account of any disease. It shall be unlawful for any person negligently or willfully to allow his hogs or those under his control afflicted with any disease to escape his control or run at large."

Then follows a definition of penalties.

[Glanders discussion omitted because already covered in the paper on "State Control of Glanders," by the same author, and recently published in this JOURNAL.]

(To be continued.)

McKillip Veterinary College is conducting a practitioner's course at which some fourteen of the profession are attending.

Five graduates in veterinary medicine are attending the regular course at McKillip Veterinary College.

Western Veterinary College has had some thirty-three students enrolled during the present college year. This school expects during the coming year to construct a building especially for the purpose of college work and instruction.

Dr. James S. Catanach, of New York City, intends that, so far as he can set the example, there shall be a greater need of horses, appearing among his clients regularly now with three horses abreast, or rather two horses, and a mule gracing the centre place.

Veterinarians officiating at the September Horse Show at Bryn Mawr, Pa., were Drs. C. J. Marshall, C. T. Goentner, and Alex. Glass.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF M. P. RAVENEL, M.D.
PHILADELPHIA, PA.

A PRODROMIC SYMPTOM OF RABIES IN THE BOVINE SPECIES. In a herd of cattle which had been attacked by a mad dog four young animals and one grown animal showed rabies after one month.

The following symptoms were noted: Irritation of the muzzle and upper lip, loss of appetite, cessation of rumination, constipation, a gloomy or even fierce aspect, abundant salivation, pawing, repeated bellowing, general tremors, paresis affecting especially the hind quarters, paralysis, and death.

The first of these symptoms—the irritation (twitching) of the upper lip—gives to the practitioner a prodromic symptom. It gives to the animal a grimace analogous to that of the rabbit, and continues during the whole course of the disease. It makes its appearance at least one day before loss of appetite is seen, and since it does not occur in any other affection it is of great value to the attending veterinarian.—*Recueil Vet.*, October, 1899.

THE ACTION OF CREOLIN IN ANTHRAX (by Hansen). The author was called to examine a cow taken suddenly sick. Respiration was difficult, fever quite high, and depression of vital forces very marked. Rumination had stopped, and secretion of milk was entirely arrested. The owner had already given some remedies to the animal, and had cut the tip of its ear. By its movements it had already sprinkled two cows alongside with blood. It died rapidly after having had one rectal hemorrhage. The post-mortem examination as well as the microscopical examination proved that the animal had died of anthrax.

Two days later a second cow became ill and showed the same symptoms as the first. Remembering the communication of Meier, the writer administered 30 grammes of creolin in a mucilaginous mixture. One hour after absorption of the medicine the animal showed a marked amelioration of its symptoms. The same evening a second dose of 20 grammes of creolin was given. On the next day the appetite had returned, the alarming symptoms disappeared, and at the end of seven days cure was complete. During this time the cow had been given a soupspoonful of creolin three time each day.

Some days after the second case had appeared the two cows which had been sprinkled with blood from the first animal showed alarming symptoms of the same nature as seen in the two preceding cases. The owner did not hesitate to administer creolin to them immediately, and also gave it as a prophylactic to all his other animals. The sick ones soon recovered, and no other case of anthrax occurred on the farm.—*Berliner Thieraerztl Wochenschrift*, 1899, No. 49; *Annales de Médecine Veterinaire*, March, 1900.

SELECTION.

Farmers' Bulletin, No. 101, issued by the Department of Agriculture, relative to value of millet as a food, has this to say as to the reputed injuriousness of foxtail millet forage:

In some sections of the country the foxtail millets have gained the reputation of being injurious to certain kinds of stock, and are therefore regarded with suspicion by many farmers and stockmen. Like many other forage-plants, these millets become very harsh and woody with age, and are then difficult of thorough mastication and hard to digest. Then, too, at this stage of growth the beards are stiff and harsh, and are not only difficult to digest, but produce more or less irritation in the digestive tract of the animal, and sometimes unite with other indigestible substances, forming compact balls in the stomach, ultimately causing death. This difficulty may be avoided by cutting the hay in proper season, as recommended elsewhere. No more trouble seems to have been experienced in feeding the millets in the fresh state than with any other succulent forage. Most of the injury has arisen from feeding the hay in large quantities with little or no other grain or forage, and for extended periods.

At the North Dakota experiment station an extended experiment was recently conducted to determine what, if any, deleterious effects would result to horses from a continued diet in which millet hay replaced that ordinarily used in the ration. The animals were grained, watered, and otherwise cared for as usual. At the end of the experiment Dr. Hinebauch,[1] the veterinarian of the station, concluded that millet, when used alone as a coarse food, is injurious to horses—first, in producing an increased action of the kidneys; second, in causing lameness and swelling of the joints; third, in producing infusion of blood into the joints; fourth, in destroying the texture of the bone, rendering it softer and less tenacious, so that traction causes the ligaments and muscles to be torn loose.

These results seem to show conclusively that under certain conditions millet-hay becomes injurious to horses at least, if not to other stock also. This agrees, too, with the general experience of farmers and stockmen, that a long-continued diet of millet-hay, particularly hay in poor condition, tends to weaken horses and unfit them for doing hard work. Again, both immature and overripe foxtail millet is said to produce abortion in brood-mares and cows, but this has not been established experimentally.

More recently Professor Ladd,[2] of the same experiment station, has made a chemical study of millet-hay, in which he succeeded in isolating a glucoside which he calls setarian, and which, from its physiological action on mice, rats, and young cats, he concludes to be the cause of the injury to horses and other stock.

Millet in any stage of growth acts as a laxative and diuretic. At times the action is more pronounced than at others. Thus hay cut while the plants are quite young seems to be most strongly laxative, while overripe hay is most strongly diuretic. However, if the hay is cut at the right stage of growth and properly cured, the action in either case will not be sufficient to lead to serious results if other hay or coarse forage is fed along with the millet. One feed of millet-hay per day for work-horses, and one or two for other stock, is sufficient, and when fed in this manner the millet acts as a stimulant and alterative, and tends to produce and maintain a healthy condition of the animals.

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[1] North Dakota Experiment Station Bul. No. 26, p. 105, 1896.

[2] North Dakota Experiment Station Bul, No. 35, p. 323, 1899. See also Amer. Chem. Journal, No. 20, p. 861.

THERAPEUTICAL AND PHARMACEUTICAL NOTES.

UNDER THE DIRECTION OF W. J. MARTIN, M.D.C.,
KANKAKEE, ILL.

REVISION OF THE UNITED STATES PHARMACOPŒIA. There has been called to meet in Washington, D. C., May 3, 1900, a convention to revise the *Pharmacopœia* of the United States of America. The members of this convention will be composed of delegates from the various medical and pharmaceutical associations of the United States which shall have been in existence for a period of five years previous to the date of the convention. The United States Army and Marine Hospital Service will also have representation in the convention.

While the *United States Pharmacopœia* in its present form appeals more directly to the pharmacist and practitioner of human medicine, it is nevertheless of some value as a guide to the preparation of the various medicinal compounds and new remedies used by the veterinarian.

There is at the present time much discussion going on among the members of the medical and pharmaceutical professions as to what drugs shall be admitted into the revised work. It is claimed by many that in order to make the work more popular with the members of the medical profession the *Pharmacopœia* should contain the maximum and minimum doses of the medicinal preparations therein contained. Why the *Pharmacopœia* should not contain such doses always appeared an enigma to the writer.

The introduction of new remedies or patented synthetics into the *Pharmacopœia* is a subject that has given rise to much discussion both for and against. However, the general opinion among pharmacists and medical men seems to be that the Committee on Revision will recommend the incorporation of a few of the more important synthetic drugs, such as are definite chemical compounds and whose extensive use in medicine and pharmacy justify such a course.

In its present composition the *United States Pharmacopœia* can scarcely be considered an indispensable work of reference to the American veterinarian, as in its compilation his profession is entirely ignored. This fact becomes very evident when the *United States Pharmacopœia* is compared with some of the European pharmacopœias, more especially the French. This pharmacopœia or

"Codex," as it is usually called, is considered the most complete work of its kind in existence. It contains in the form of an appendix a complete pharmacopœia of veterinary medicines, giving to our profession in that country the recognition it so richly deserves.

The time has come when the veterinary profession of North America should cease to depend upon foreign veterinary pharmacopœias, many of these being wholly unsuited to the requirements of the profession in this country. Again, many of these works have through lack of revision become obsolete, and thus in a certain sense are misleading to the students of veterinary pharmacy who consult them. In an endeavor to improve the status of American veterinary pharmacy the Executive Committee of the American Veterinary Association at its last meeting recommended that the president of the Association appoint a committee of three members who should endeavor to secure the incorporation in the next revised edition of the *United States Pharmacopœia*—in the form of an appendix—a pharmacopœia of veterinary medicine.

HAS THE BLADDER ANY POWER OF ABSORPTION? Barbiani (*La Riforma Medica,* August 11, 1899) has carried out a series of experiments on dogs and rabbits with relation to the above subject. On alternate days for an hour at a time he washed the bladder out with solutions of boric acid, phenol, sublimate, salicylic acid, antipyrine, quinine, cocaine, atropine, strychnine, and iodide of potassium (very slightly). In subsequent washings absorption took place, and the greater the number of washings the more marked the absorption. This absorption occurred without any alteration in the minute structure of the vesical epithelium (except in the case of the phenol and sublimate solutions, where slight changes in the superficial layer of the epithelium were noticed). The absorptive power was not increased by keeping a catheter permanently in the bladder.—*British Medical Journal,* October 21, 1899.

A FORMULA FOR THE HYPODERMATIC INJECTION OF ACOIN. Acoin, which is one of the new local anæsthetics made by synthesis, possesses the advantage that it produces anæsthesia rapidly, and that this anæsthesia is maintained from forty to fifty minutes. The following solutions may be used for hypodermatic purposes: ℞.—Acoin, 16 grains; chloride of sodium, 15 grains; distilled water, 3 ounces.—*Therapeutic Gazette.*

THE ROLE OF IRON IN FORMING BLOOD. A. Hoffmann, of Halle (*Munchener mediciniische Wochenschrift,* 1899, No. 29), whose experiments have already proved the absorption and excretion of iron in the small intestine in man, and also in animals its excretion by the colon, thus confirming the results arrived at by Macallum, Hall, and others, in continuing his investigations as to the mode of action of the metal, has experimented on ninety-eight rabbits, on some made anæmic by blood-letting and others normally healthy, and in both cases with and without the administration of iron. Particular attention was paid to the bone-marrow, spleen, and lymphatic glands as specially concerned in blood-formation; but the liver, kidneys, and small and large intestine were also examined, the blood-corpuscles were counted, and the hæmoglobin estimated, etc.; and the various preparations of iron and hæmoglobin tested as regards qualitative and quantitative absorption. He found that all forms of iron were absorbed in the duodenum, and entered the circulation in transport cells combined with albuminous matter in a combination which had no toxic action. It could be so demonstrated in large quantities in the spleen, liver, and especially in the bone-marrow, where crowds of these iron-laden cells were present; in the tardy blood-stream, in the parenchyma itself, and in the network of vessels within it. This organ alone exhibited after blood-letting a corresponding regenerative activity—an active hyperplasia of its parenchyma. The restoration of the red-corpuscles was more rapid, the bone-marrow richer in its contents after the administration of iron, while the spleen and lymphatic glands showed no difference. Iron given without blood-letting caused some increase of the red cells circulating, and of the fat, but not of cell formation in the bone-marrow. The restoration of the hæmoglobin was not so complete; there was no apparent increase in the coloring-matter of the blood from the use of iron. In fact, iron has a stimulating action on the physiological activity of the bone-marrow, and accelerates the ripening and entrance into the circulation of the young cells therein produced as a nuclear erythrocytes. Special preparations of iron are unnecessary, of hæmoglobin irrational; the action of the iron depends entirely on the quantity of the metal absorbed.—*British Medical Journal.*

TINCTURES MADE FROM FLUID EXTRACTS. The slipshod method of preparing tinctures by reducing a certain amount of fluid extract with alcohol and water and calling the mixture a tincture should be discountenanced by all members of the medical profession. Such preparations are not tinctures in any sense of the word, being merely dilute fluid extracts. To bear out this assertion we note that the Australian Government has lately issued a decree prohibiting pharmacists from preparing tinctures, decoctions, and infusions from fluid or solid extracts, giving as a reason that preparations thus prepared are not the same as preparations prepared in the usual pharmacopœial manner. Mr. W. R. Naville, in a paper read before the Texas Pharmaceutical Association on this subject, says: "It is clearly unreasonable to claim that the same tinctures can be had by extract dilution as by drug exhaustion. The practice of using fluid extracts for making tinctures should be condemned as inimical to the interests of pharmacy and legitimate medicine."

UNITED STATES DISPENSATORY. The eighteenth edition of this excellent work has lately been issued. The first *Dispensatory* was brought out in 1833, and since that time this standard work has been of the greatest value in spreading phamaceutical and botanical knowledge throughout the Western Hemisphere. The present edition contains about two hundred new drugs or combination of drugs more than the preceding edition, and to make room for these new acquisitions without increasing unduly the size of the work much old matter has been eliminated. Most of the new additions to the present edition are drugs of the synthetic class, and many of these are manufactured under foreign copyrighted names. While the propriety of introducing these trade-marked drugs into a standard work of reference for the medical and pharmaceutical professions may be questioned, it will have to be admitted that many of the preparations have acquired a permanent place in the armamentarium of the physician and veterinarian. The convenience of having such preparations grouped in such a work as the *Dispensatory* will be obvious to all. The library of every progressive veterinarian should contain a copy of this work.

DEHORNING FLUIDS. The patented dehorning fluids sold in the drug-trade under fanciful names consist merely of a strong solution of caustic potash, to which is added a small amount of carbolic acid.

HARD SETTING FOR PLASTER OF PARIS. Plaster of Paris is said to set much more efficiently with sulphate of potassium than with the chloride of sodium. The potash salt may be used in any strength. The stronger the solution the quicker the setting.

INSECTICIDES. *Flea-powder* : ℞.—Napthalin, 4 ounces ; starch, 12 ounces ; reduce to a fine powder. This is an excellent powder for the removal of fleas from cats and dogs by rubbing into the skin of the animal and letting the powder remain for a day or two, when the same can be removed by combing or giving a bath to which some infusion of quassia or quassia chips have been added. This treatment is equally efficient for lice and ticks, with which dogs as well as cats are afflicted.

Wash for fleas and lice on animals: ℞.—Napthalin, 1 ounce ; wood spirit, 5 ounces ; green soap, 5 ounces ; water, 20 ounces. Mix. Rub well into the hair and wash the animal the next day. Rarely more than one repetition is called for.

Dog-wash: ℞.—Soft soap, 2 ounces ; creolin, 1 to 2 ounces ; methylated spirit, 10 ounces ; water, to 20 ounces. Mix. Dissolve the soap and creolin in the spirit, and add the water gradually.

Cattle-dip for ticks: Dr. Norgaard, of the Bureau of Animal Industry, finds the following dip useful, immersion lasting one minute: ℞.—Sulphur, 86 pounds ; extra dynamo oil, 1000 gallons. Mix.—MYERS BROS., *Druggist.*

DISINFECTION OF THE SKIN AND HANDS. Dr. Mikulicz (*Deut. med. Woch.*) recommends the German official soap spirit for this purpose, especially in country practice and in military service, where the precautionary measures available, *e. g.*, in a large hospital, are not practical. The spiritus saponatus is prepared with 6 parts of olive oil, 7 of liquor potassa, 30 of alcohol, and 17 of water. Spores of staphylococcus aureus introduced on balls into this spirit were killed in one-half minute, while in 0.1 per cent. solution of hydrogen dioxide they were not killed before ten minutes. If the balls were first moistened in water sterilization took two minutes. Similar results were obtained with other microörganisms. Experiments made on the hands, including observations after they have been infected by contact with septic wounds, gave absolute sterility in 40 per cent. Soap spirit causes no irritation, acts thoroughly, its effect lasts some time, it acts quickly, is harmless and odorless.

GOLINDRINERA, OR EUPHORBIA PROSTRATA, FOR SNAKE AND INSECT BITES. Dr. E. Hammond, of Noria, Mexico, writing in the *Medical Brief*, says about euphorbia prostrata, also called golindrinera (corrupted into "golandrina") that its reputed virtues are well merited. "I have been using it for the last thirty years, and it has never disappointed me as an antidote to the poison of serpents and all kinds of venomous animals with only one exception, and that in a small spider, called here the 'uvar.' I use the whole plant and root. I make a saturated solution or tincture with dilute alcohol, and give from one-half to one ounce every thirty to sixty minutes, according to circumstances, and apply same to wound. This is for small animals such as scorpions, centipedes, etc. For rattlesnake bites I give as much as two ounces every hour or two, and help it by keeping the wound well covered with the tincture of iodine. I use the plant dried and powdered in making the tincture. With me it has never proved either emetic or cathartic." This plant is mentioned in the *United States Dispensatory*, where the euphorbia ocellata of the Pacific coast also is said to be used as an antidote for snake-bites.

NAFTALAN IN OBSTINATE SKIN DISEASE. This drug is described by Poyntz-Wright (*Therapist*), who has found it extremely useful in various chronic skin affections. It is procured from a crude naptha found in the Caucasus at a place called Naftalan, from which it acquires its name. It occurs in the form of a greenish-black mass, insoluble in water or glycerin, but mixing easily with fat, and soluble in ether and chloroform. It will never become rancid, and is non-poisonous. In chronic eczema it has given most satisfactory results, the inflammatory condition subsiding quickly, and the exudation drying up with equal rapidity, added to which there was almost immediate relief from the distressing burning and stinging sensations. It has also been used with success in psoriasis inveterata and pityriasis versicolor, and effectually prevents pealing off of the epidermis in tender skins that are affected by sea-water and the hot sun. It is also recommended in burns, erysipelas of the face, and as a local application in rheumatism and gout.—*Medical Standard.*

SODIUM BICARBONATE FOR SUPPURATING WOUNDS. Ange and Casteret (*La Presse Med.*) say that bicarbonate of sodium used in a 2 per cent. solution is an excellent treatment for suppurating wounds. They have used it in some sixty cases with great satisfaction. The solution is not bactericidal, but acts in a wound as an antiseptic, probably because its alkalinity preserves the tissues and puts them and the blood in the best condition to overcome the germs. Moreover, the healing of a wound, according to Preobrajenski, is not exclusively due to the destruction of germs. It depends upon the capillary circulation in the wound. If the liquids in the wounded area pass from within the body outward they carry off toxins, if they pass from without inward general infection follows. This view has been proven by a number of experiments. Bicarbonate of soda by dissolving the fatty matter of the skin stimulates the secretions through all the tissues in a vital condition. It is in a certain sense, therefore, a physiological dressing.

CAMPHORATED OIL A CARBOLIC-ACID ANTIDOTE. Alvarez (*Zeits. f. Phar.*) reports a case of successful recovery from carbolic-acid poisoning by the administration of camphorated oil.—*Western Druggist.*

INOCULATION AGAINST PLAGUE. In an address before the Royal Society in London, Haffkine (*Lancet*) cites some results from the use of his prophylactic serum in the modified form now used. For instance, at the Byculla jail there were twelve cases of plague and six deaths among 172 uninoculated prisoners, and only two cases with no deaths among 147 inoculated prisoners. At Umerkadi jail there were ten cases and six deaths among 127 uninoculated, and only three cases with no deaths among 147 inoculated. Again, at the village of Undhera there were twenty-seven cases and twenty-six deaths among sixty-four uninoculated inhabitants, and eight cases with three deaths among seventy-one inoculated inhabitants. Other observations on a larger scale were quoted, such as those at Lanowlie, Kirkee, Damaon, Hubli, Dharwar, and Gadag, and in each the difference in the mortality from the plague between the inoculated and the uninoculated was estimated to average over 80 per cent. Further, it appears from data collected in the larger hospitals that the case-mortality among the inoculated admitted for plague is at least 50 per cent. lower than among the uninoculated. The accuracy of these results is vouched for by numerous independent observers. Even opponents have been compelled by the logic facts to admit that Mr. Haffkine's system has triumphed.—*Ibid.*

DISCOLORED ESERINE SOLUTIONS. Solutions of eserine easily become discolored. According to Hallauer (*Zeit. f. Augenhl.*) their mydriatic action is not diminished thereby, but secondary results are produced which render their actions undesirable. The change may be prevented by adding 4 per cent. of boric acid, which does not interfere with the physiological action of the alkaloid. The sulphate is said to be less stable than the salicylate.

REPORTS OF CASES.

SCHMIDT'S TREATMENT OF PARTURIENT PARESIS.

By A. G. Alverson, V.S.,[1]
BLOOMINGTON, ILL.

Having had an opportunity several times to try the much-vaunted treatment of Schmidt on what he terms parturient paresis, and not being wholly satisfied with my results, thought I would bring the subject before this Society.

Case I.—Grade, shorthorn. Called in the afternoon a short time after the cow had gone down and the second day after eating. My apparatus consisted of a new piece of rubber tubing, a glass funnel, and a milk tube. I thoroughly cleansed the udder of the cow as she lay flat on her side, then disinfected the same. I immersed my apparatus in boiling hot water, made the potassium iodide solution with boiling water, cooled by pouring from one pitcher to another, and forced it into the udder by the law of gravity, thoroughly kneading same. I then rolled the cow upon her sternum and propped her up in that position.

Gave jaborandi (fluid extract) on the tongue; had the rectum thoroughly emptied and left, telling them to keep her in good shape through the night, and I would see her in the morning. They telephoned me the next morning not to come, and I learned later that she died that day. Perhaps further treatment would have been beneficial, but they thought she was getting worse, and so wanted no further expense.

Case II.—Grade, Jersey. In the country; had been down, regained feet, and fell while I was making a general examination. Could not get up, and grew worse rapidly. Gave same treatment per udder, and left fl. ext. jaborandi, to be given later with hypodermatic syringe, if necessary. They gave two doses. This case recovered and was up next day.

Case III.—Grade, shorthorn. Well-marked case complicated with inversion of the vagina up to and including the mouth of the womb, which was easily returned and kept in place. Gave the same treatment as in Case II., but with no success. Saw her again the next day, and repeated the treatment, but that night she succumbed.

[1] Read before the Illinois State Veterinary Medical Association, February 21, 1900.

CASE IV. had been down only a short time, but was bad; had treated this cow two years before for the same trouble and gave the same treatment, being minutely careful of every detail and particularly exacting as to asepsis. The following evening had another opportunity to see the animal. She was growing worse, although she had rested quite well all day. Died.

CASE V.—This case had recovered under other treatment one year before, and did not appear near as bad this time. Gave the Schmidt in detail, and followed with stimulants, only to lose the patient.

CASE VI.—An extra fine cow. Shorthorn and Jersey. Just gone down and several days after calving. Gave full and careful treatment and lost the patient. Am sure I gave as careful detail as possible in the treatment of all these cases, and am inclined to think my poor success was due to the inefficiency of the remedy; still I see that many are claiming great results from it.

That it does exert an influence on the cases I will not question, as most of them, if not all, seemed to brighten up for a time and be far easier to care for and keep in position. Would like very much to be able to do something with it, as it is so much easier to care for the cases in that way.

SPASM OF THE MASSETERS, WITH COMPLICATIONS.[1]

BY J. D. NIGHBERT, V.S.,
PITTSFIELD, ILL.

UNDER the above heading I shall call your attention to a few of the many cases of this disease or condition coming under my observation, not that I can give you the true etiology, but to add my mite to the very scant literature on the subject.

Generally seen in warm weather and in animals that have been at rest for a more or less lengthy period, and usually seen after vigorous or extended exercise. A majority of the cases coming under my observation were in animals that were taken up from pasture and put suddenly to work. I am inclined to think that this condition arises in a great many cases from some gastric disturbance depending on disturbed nutrition and the circulation of impure blood through the cranial structures.

After somewhat prolonged exercise a profuse perspiration is noticed, and if exercise is continued this will soon cease, and the animal becomes dry; then will be noticed an inability or lagging in harness, and on being brought to a standstill there will be some uneasiness, with spasm of diaphragm and slight colicky pains, which soon pass away, followed by an inclination to wander around the enclosure or stall. At this stage may be noticed a slight turning up of the upper lip owing to spasm of the levators of the lip being in a tonic state; the masseters are soon in the same condition. While the temporals are also involved, they maintain a clonic condition throughout the attack.

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[1] Read before the Illinois State Veterinary Medical Association, February 21, 1900.

Breathing accelerated; heart beats rapidly, but pulse at the jaw is almost imperceptible; temperature high, varying from 105° to 108°. After the initiatory stage the power of deglutition is lost. The duration of this condition is from a few to twenty-four hours.

CASE I.—Aged roan mare, taken from pasture and put to work on a very warm day. About the middle of the afternoon she was noticed to be sweating profusely, and inclined to stagger, and, after resting a few minutes, refused to go when spoken to. She was taken out and I was sent for. Found patient as follows: sweating considerably, hurried breathing, nostrils dilated, heart beating rapidly, pulse almost imperceptible at the jaw, well-marked spasm of diaphragm, mare wandering around, gait stilty, masseters in tonic spasm, temporals clonic, upper lip turned up and levators in tonic spasm; temperature 106°; unable to drink; would put her nose almost up to the eyes in the bucket in a vain attempt to get a swallow of water.

Treatment. A liberal abstraction of blood from the jugular, a hypodermic of atropine, and had the patient taken to the shade; cold water continually applied to poll; left one ounce of potassium nitrate to be given in drinking-water as soon as the patient could swallow; told owner I would call again the next morning. Mare became easy and quiet about midnight, and was left to herself for the rest of the night. When I called the next morning I found the patient somewhat improved and very anxious to drink, but was still unable to swallow. I inserted a tube through the nostril into the œsophagus, attached the hose of the syringe, and gave her about two gallons of water in which one-half ounce of potassium nitrate had been dissolved. This acted like magic, and in a very few minutes she was able to swallow and was anxious for feed. Ordered her kept in the shade and fed lightly.

CASE II.—Bay pony, taken up from pasture and driven into town, a distance of about nine miles. Symptoms similar to Case I., with well-marked emprosthotonus. Would place her head almost to the ground between the front legs, seemingly to attempt to turn a somersault. Treatment similar to the above, but used tube twice about three hours apart. Symptoms soon subsided. Case did well.

CASE III.—Bay mare, with colt by her side, had been kept in small paddock. Served early in morning of ninth day and put in box-stall. In the course of an hour or so the owner noticed a slight spasm of the diaphragm, but as the mare appeared to be busy eating hay from the manger he thought there was nothing serious, and left her until evening, when her condition was worse. I was called. Found the patient with well-marked spasm of the diaphragm, masseters, etc., and a mouthful of semi-masticated hay. Treatment the same as the previous cases. No improvement. Mare died at 5 A.M.

THE ANTITOXIN TREATMENT OF DISTEMPER OR SHIPPING FEVER IN HORSES.

By GEORGE S. FULLER, V.S.,
PHILADELPHIA, PA.

AFTER more than a year's treatment of large stables of horses, subjected to the conditions which almost invariably induce influenza or shipping fever, I am convinced that distemper antitoxin is a valuable preventive of the disease.

When used in the earlier stages of influenza the cases can sometimes be aborted with the result of a normal temperature, disappearance of congestive and catarrhal symptoms, and return of appetite within forty-eight hours. In other cases the disease will run its regular course with the usual symptoms, except that the heart always behaves much better and the appetite and digestion remain good, which of course leaves the patient fit for work much sooner than if there had been no serum used.

I have used considerable of it on green western horses in the stables of Messrs. L—— Bros., and have seldom had an animal that was inoculated on his arrival lose any time on account of distemper. I allowed one lot of five green horses, during the pleasant weather of early winter, to go without immunizing, and within the first four weeks had every one sick. Since then I have immunized three out of a lot of five that came in together, leaving two of the older ones that looked somewhat second-handed without the antitoxin. These two are, at this writing, sick, and the three younger ones are perfectly well, all having received the same feed, care, and work.

As to the method of using, I have, after considerable experimenting, arrived at the following conclusion: When an animal, green or acclimated, is well one dose of 20 c.c. is sufficient to give him immunity from influenza for as long a time as actual occurrence of the disease would have afforded. If the disease has already been ushered in and there are present some congestive and catarrhal symptoms with moderate elevation of temperature, I administer 20 c.c., followed next day by a second dose of 10 c.c., when, if symptoms are all abating, I look for recovery the next day. If, on the other hand, I find no improvement on the second examination, I put the patient on the treatment indicated by his condition, confident that the administration of the first 20 c.c. will modify the usual course of the disease as stated above. I have tried pushing the antitoxin[1] in large and repeated doses, but found no benefit from it that would not accrue from the first injection of 20 c.c.

VERMINOUS OPHTHALMIA (INTRA-OCULAR FILARIOSIS).

By A. G. Hopkins, V.S.,
UNIVERSITY OF WISCONSIN, MADISON, WIS.

During a course of practice in Manitoba I was fortunate enough to run across a case of the above-mentioned disease. The owner had consulted me about the case some three weeks previous to allowing me to make a clinical examination and diagnosis. His description of the case led me to believe that I had a case of simple ophthalmia, as he naively put it; a scum was growing over the eye, which burnt alum and powdered glass could not remove. I strongly deprecated such heroic measures, and insisted on a clinical examination. The animal (a mare) was brought to me showing profuse lachrymation, photophobia, and conjunctivitis. In spite of the partial opacity of the cornea, the filaria could be readily seen performing rapid evolutions in the fluid of the anterior chamber. An operation being decided upon, the animal was placed in a recumbent position, the eye was cocained (5 per cent. solution) and the technique of Williams (*Veterinary Surgery*) adopted. I was indebted to a medical confrere for a scalpel with which to make the incision at the upper and outer edge of the cornea. The scalpel was introduced at an angle so as to make a valvular incision. A fine pair of forceps were then used to dilate the incision when the filaria was somewhat forcibly expelled. Little of the humor (aqueous) escaped, but the parasite died on reaching the extra-ocular position, whether due to contact with some of the anæsthetic or not I am unable to say. The eye was treated with cold boric acid compresses, and later with a mild atropia-zinc sulphate lotion. I did not see the patient again. The owner, however, one month later reported the opacity of the cornea as disappearing, and stated that the mare could see quite well and that the intolerance of light had disappeared. The filaria was about 2.5 inches long, thin and white, with a smooth integument, and is now resting in glycerin. I consider the rationale of Williams' technique for the keratotomy preferable to that given by Neumann.

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[1] The antitoxin employed in all my cases was that furnished by the H. K. Mulford Co.

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Dr. Hugh Thomson, of Shabbona, Ill., reports a fatal result from overdose of arecoline hydrobromata. Subject: a four-year-old gelding, weighing over 1600 pounds. Two grains of the drug were injected in the chest muscles, followed in five minutes by profuse salivation; in twenty-five minutes by passage of feces. The animal was down when medicine was given, but rose up at the first movement of bowels; pain seemed to have left him. Several movements of the bowels followed during the first hour, becoming liquid in character, and, though the pain ceased, the liquid stools continued for some thirty hours, at which time he died.

On autopsy the stomach and bowels were inflamed and contained a vast amount of a bloody flux, and death seemed to have followed from the gastro-enteritis set up and superpurgation produced.

* * *

The presence of rabies among sheep in Western Pennsylvania is said to have caused the loss of some seventy-five head in one flock.

Missouri, Kansas, and Texas livestock sanitary boards require that all cattle shipped into those States for breeding purposes shall be accompanied by official certificates of health, including the tuberculin-test. Many such cattle shipped through Kansas City are examined by government veterinary inspectors.

The Holstein-Freisian Association is determined to force sister associations of milk-cattle to a test of the relative merits of the several breeds as to butter-making.

EDITORIALS.

A NEW DEPARTURE.

THE modest invitation sent forth from the University of Pennsylvania Veterinary Department to the veterinarians in active practice in the State to come and spend a period of ten days in post-graduate instruction free of any expense has proven a new departure of great importance to the profession.

The success attending this initial effort far exceeded the most sanguine expectations of any one of those who proffered their services in conducting the work.

More than fifty active practitioners responded to the call, and with one accord voted that it be made an annual feature.

Clinical instruction daily in the hospital, lectures on every aspect of sanitary control work, laboratory demonstrations, visits to ideal dairy farms, talks on aspects of State and municipal laws and ordinances, and a thorough understanding of how these may be maintained, extended, and enhanced in their value to our people, sent forth at its close a body of men made better in every way for their work, each one a new centre of force to awaken his people to the value and need of this work and better enabled to perform the duties required by the State Live-stock Sanitary Board. A dinner given by the University at the Faculty Club's home added much to the fraternal feeling on this occasion, and the fruits of this undertaking will grow with each added year to the honor of Pennsylvania's earnest, aggressive, and progressive veterinarians.

Much credit, indeed, is due to State Veterinarian Pearson, who planned the project, and to Professors Adams, Harger, Ravenel, Hoskins, Conrad, and Klein, who gave their services in the work.

ARMY LEGISLATION.

THE fate of army legislation is now in the balance, the outposts have all been won, and the lines of action are now clear for the final charge. The Army Department, from the Secretary of War to the Adjutant-General and his staff, must be won to our cause to make victory sure. Every influence in our power should be brought upon Secretary Root and his staff to give their unqualified support to this long-deferred measure. There are many avenues to Washington, and hurried tread should be the command to every supporter of this measure, whose ways can lead to the War Department. Let everyone respond to the final call and send forth a final shot to win this victory.

COMMERCIAL ENTERPRISE *vs.* PATERNALISM.

THE battle is on between those who are commercially engaged in the preparation of biological products and our government, which, while ostensibly engaged in scientific investigation, is, on the other hand, filling the role of a paternal government contrary to the teachings and foundation-stones of our country. The free access to these products is destined to ultimately become as much a sore on the body politic as the shameful seed scandal of our parental government. The open door of correspondence between those directing the Department of Agriculture and the commercial makers and venders of their products has assumed strong proportions, and our Congressional representatives at the nation's capital find a burning question to solve. Much can be said on both sides of this problem, and in these days of sudden changes there seems a much stronger disposition than ever to have our national government regulate our railways, telegraph and telephone lines as well as our postal service. On the other hand, the freedom of trade to be afforded to every industry by our parental government is not given in this direction when the utmost latitude of generosity and paternalism prevails in the free distribution of these products, prepared, etc., at governmental expense. Another great danger of much importance to scientific advancement is the furnishing of these preparations by both parties to laymen, thus endangering their proper and wise use, not to speak of the danger as well as nearly valueless deductions drawn from the reports received in return. Such work as this should ever remain in scientific hands, where all its dangers, uncertainties, etc., are fully recognized and intelligently considered.

A NEWER AND BETTER ERA.

THE signs of the times are many of an awakening all over our country to the need of better veterinary sanitary police measures. Now that some seventeen States have recognized the peril to their live-stock industries in admitting within their borders dairy or breeding stock from sister States where bovine tuberculosis prevails, and demand at the border lines certificates of health showing a freedom from tuberculosis, there dates a period when this source of perpetuation of the " white man's " plague shall be under control and surveillance, and with thorough dairy inspection for every city and town there will be a lessening in the death-rate of children that can only be faintly estimated to-day. Every State in the Union should take similar steps in protecting its livestock owners, and the people who consume the products of the dairy should fully sustain those charged with official authority and lawmaking in placing every safeguard around these mutual interests from such now recognized and known dangers.

BOOK REVIEWS.

Proceedings A. V. M. A., 1899.

In shorter time than the period designated the Publication Committee, under the chairmanship of Dr. W. L. Williams, of Ithaca, New York, brought forth the proceedings of the annual convention in New York.

The rapid production of the same has not allowed it to be the perfection of the printer's art that adds so much of value to scientific works, nor has the haste of the editors made it as complete as it should have been.

Some papers of much importance, specially prepared for the New York meeting, are omitted entirely, others are severely abstracted, while the discussions as reproduced fail very much in many instances of being faithful reproductions of what was said and discussed.

It is very gratifying and pleasing, indeed, to have such matters promptly attended to, but it will not do to sacrifice completeness, accuracy, and perfection of production in a headlong rush for rapid reproduction. Scientific records of value are not made in this way.

The Fourth Revised Edition of Gould.

Thirty thousand medical words, pronounced and defined, published by P. Blakiston's Son & Co., Philadelphia, at $1 per copy is one of the most valuable small medical dictionaries in print. Containing all the more important words, many that are not in daily use, with a series of valuable tables that make it of much service to the busy veterinarian, as a book of reference containing some 837 pages of solid matter, makes it the cheapest book of its kind published.

Diseases of Poultry. By D. E. Salmon, D.V.M. Published by George E. Howard & Co., Washington, D. C.

This work, containing some two hundred and fifty pages, covers in a very careful and scientific manner the many diseases to which fowls are subject.

So much has been written on this subject by laymen and breeders, often the veriest trash, the most ridiculous conclusions arrived at, and bosh so far as scientific medical treatment is concerned, that it is refreshing to find one author whose contribution bears evidence of careful, intelligent study and whose conclusions are based upon scientific observations.

This great industry of poultry raising, representing in America alone an investment of upward of $350,000,000, is surely of sufficient importance to our people to have it considered and studied in a thoroughly scientific manner. The annual losses are extremely onerous and are in a great measure controllable, and in some instances should be wholly wiped out. Such works as Dr. Salmon's will aid very much in the preservation and extension of this widely distributed industry.

ASSOCIATION NEWS.

The February meeting of the Keystone Veterinary Medical Association, which was devoted entirely to a consideration of the milk problem and addressed by a number of experts who have given the subject special attention from the various points of view, will be fruitful of much good in the better direction of this work in Philadelphia and many other municipalities.

The Genesee Valley Veterinary Medical Association was quick to realize the danger to the Empire State livestock industry without the same protection as Pennsylvania, Massachusetts, Maine, and other States, and have earnestly and aggressively advocated protective legislation preventing the importation of cattle into the States that are not known to be free from tuberculosis. The authorities in New York State will do well to pay heed to this advice, for nothing threatens greater danger and injury to her dairy interests than the continuance of the open-door policy to the perpetuation of this white plague.

The Minnesota State Veterinary Medical Association recently held a record-breaking meeting in point of attendance and gained eight new members.

LEGISLATION.

Iowa. This State has entered the field and passed through the lower branch of the Legislature a bill regulating the practising of veterinary medicine, surgery and dentistry.

Sections 1, 2, and 3 provide for the registration of non-graduates who have been practising for a livelihood for five years preceding the passing of the acts and those having diplomas from a legally chartered and authorized veterinary college. Registrations of non-graduates to be made before January 1, 1901, which registration to be approved by ten reputable freeholders and stockowners.

Board of Examiners to be three veterinarians, and to be appointed by the Governor, who shall be qualified residents of the State and in good standing in their profession. No representative of a veterinary college of the State shall be eligible to such appointment. At least one examination shall take place each year, others to be provided for by the board. All registrations shall take place through said board. Payment of registration fee five dollars. After January 1, 1901, all persons not before licensed shall pass an examination before the board, qualified by a diploma from a recognized school, and pay the examination fee of fifteen dollars. The board shall keep a register of all qualified practitioners in the State. Expenses are provided for in Sections 11 and 12 to any members thereof, the County Attorney of each county to conduct each transaction. The use of title without being authorized is punishable, also every practitioner of the State shall renew his license each year, through the board, by one dollar registration of the same. All expenses to be met by appropriation of its income for such purposes.

SOCIETY PROCEEDINGS.

A. V. M. A.

Secretary Stewart furnishes the following interesting data relative to Association affairs and the coming meeting at Detroit:

President Leonard Pearson has appointed as Committee on Local Arrangements for the annual meeting to be held in Detroit next September, Drs. S. Brenton, J. Hawkins, and G. W. Dunphy. The *personnel* of this committee is an assurance that nothing will be left undone which would contribute to the convenience and pleasure of all in attendance at the meeting.

The several standing committees are actively at work, and the resident secretaries are entering on a vigorous canvass of their respective territories. With all the officers actively at work in the interests of the Association and the coming meeting, coupled with an unusual interest manifested by the membership in general, the indications are most favorable for a large attendance and a grand good meeting in Detroit.

Three papers have already been offered for the literary programme, and the Secretary hopes that others will promptly decide to prepare papers for this meeting, and will promptly notify him. Offers to demonstrate surgical operations are in order, and it is hoped that many will be willing to contribute to this most interesting phase of Association work.

An unusually large proportion of the papers announced in the programme for the New York meeting were actually prepared and offered for consideration. This factor consumed more time than had been planned for, and the Association did not have the privilege of considering some very valuable papers. As it is probable that a larger proportion of papers will be presented hereafter, it would seem advisable to allot three full days for Association work, and leave for the fourth day the enjoyment of social pleasures which it is customary for local veterinarians to provide. It is hoped that members will utilize the columns of the JOURNAL to offer suggestions as to methods for increasing the value of the meetings of the Association to them. The executive officers of the Association will be glad to learn the wishes of the membership, and will use their best endeavors to obviate the difficulties which presented themselves last year.

MISSOURI VALLEY VETERINARY ASSOCIATION.

(Concluded from page 117.)

The President called on Dr. A. T. Peters, of Lincoln, Nebraska, who read a paper on "American *vs.* European Inspection. (See page 140.)

Discussion.

Dr. Forbes: I must say that Dr. Peters has treated the subject in a manner far different from what I had anticipated. What he has said in regard to the meat-inspection service of this country is certainly very flattering to that service. During the last five or six years I think that the system of inspection as carried on by the Bureau of Animal Industry has come to be an almost complete system, and will compare favorably with that of any other country in the world. A great deal has been said about the scientific manner in which meat-inspection is carried on in Germany, but we learn from Dr. Peters' remarks to-night that our system will compare favorably with that in vogue in Germany. I fully believe that the efforts put forth by those in authority in regard to this inspection will ultimately result in a system complete and perfect in every detail, when the mark of the United States Government will be a sufficient guarantee to any country in the world as to the purity and wholesomeness of its meat products.

Dr. Stewart: Permit me to say that Dr. Peters prepared this paper at my suggestion. I had received a communication from the Secretary, Dr. Kelly, stating that there was rather a dearth of papers, and it occurred to me that we could possibly prevail upon Dr. Peters to attend our meeting and prepare a paper for this occasion. I suggested that the paper discuss the views of the people in general, and of those veterinarians who are not in the service, as to the value and quality of the inspection as conducted by the Federal inspectors. That was my idea, rather than comparison with foreign inspection. I think it is beneficial to us "to see oursel's as ithers see us." I thought it would be interesting to the members of the inspecting corps here to know how the people in Lincoln, where they have but a small abattoir, and get most of their meat from South Omaha, look upon the subject of inspection. Dr. Peters travels over the State of Nebraska extensively, and is in touch with other parts of the country, and is certainly in a position to learn the views of the people generally.

However, I would say that he has prepared a paper which is probably more interesting than would be one prepared upon the basis I have indicated. It is gratifying to learn that our inspection bears so favorable a comparison with that of Germany. I am indebted to Dr. Peters for the information that the inspection in that country is not federal, but local. It would certainly seem that where it is under so many authorities it could scarcely be uniform throughout the empire of Germany. It may possibly be extra good in some points and very poor in others, and explains the blunders that have been made, especially in the microscopical work, where they have rural as well as municipal inspection. A layman or man having been but partially instructed in the use of the microscope, is delegated to do rural inspection. His attention is called to the fact that a farmer wants to slaughter a hog and consume it for his own use, and gives a permit for him to do so. The farmer and his friends kill the animal and consume some of the meat sometimes before the inspection is completed. An outbreak of trichinosis occurs, an investigation is made, and it is found they have been eating pork that has not been inspected or if so has been imperfectly inspected and passed.

I wish to allude to a circumstance which occurred in Kansas City perhaps a little more than a year ago. One of the abattoirs in that city was reported in the public press to the effect that the grand jury had found that one of its employés had endeavored to bribe some of the government inspectors to pass condemned meat, and the publication of that article engendered a feeling among the consumers of meat in the surrounding country which made them averse to buying the products of that abattoir. Meats shipped out to towns in the surrounding country were returned with the statement that there was a feeling that that firm was desirous of, if it did not actually engage in, shipping out meats that would not bear inspection. That was an indication of the feeling in the region about Kansas City in regard to inspection. Of course, it needed something of that kind to bring out an expression of sentiment. The inspection certainly is growing in effectiveness, and since hearing this paper I feel much encouraged in regard to it. Dr. Peters has certainly looked upon it with a kindly eye, but I have no doubt whatever that he has drawn a fair comparison, and I believe the publication of that paper will impress our veterinary readers very much in favor of American inspection. Those who have given the matter little attention are ofttimes inclined to look upon the force as a lot of men with government jobs and that it is just a place for a lot of politicians to put their friends.

I believe the publication of this paper in our periodicals might be extended to the lay press. For instance, if the veterinarians of this city would take such an article to their papers and request them to publish it as an extract from the *Veterinary Review*, or the JOURNAL, whichever it may be published in, and the same method followed in other cities, it would in this manner secure an extensive publication. If in St. Joseph it is deemed desirable to cultivate public sentiment along that line, a continual supply of just this sort of articles to your daily press will after a time bring forth substantial fruit in the way of inspection, and is one of the surest and best methods to reach that goal.

Dr. Peters: If I had been near Dr. Stewart at the time he suggested this paper I would have written it somewhat differently. I am very sorry I did not know just what he wanted, but I would beg leave now to say a few words on the subject he has suggested. I think the value of meat-inspection in this country was never more clearly demonstrated than during the controversy over the meat supply to the army during the late unpleasantness. I travel on an average over a thousand miles a month in the State of Nebraska, and if I was accosted once on this subject I was a dozen times during the time to which I have alluded, and I was pleased to see the people defend the federal government. They never believed the accusations which the press made against the federal inspectors. When in 1894 I took the position I now hold it was a common thing to hear such a remark as "Oh, such and such an animal will pass all right." You do not hear any more of that. The people of the State of Nebraska at least have come to the conclusion that they are not going to be cheated, but, on the contrary, they are going to be protected. They were probably, as Dr. Stewart intimated, skeptical at the beginning, and insinuations were made as to the ease with which the inspectors might be bribed. True, an inspector might be bribed occasionally, we cannot help that; but the people have found that the federal government has a check on such things as that, and it can soon be located and rectified. I can assure anyone who is connected with the meat-inspection that he may be proud he is in the service. It is superfluous to say that many things might be suggested which if adopted would benefit the service, but it must be remembered that meat-inspection has been in vogue in this country but a short time, comparatively, and when one has an opportunity of personally comparing the efficiency of the systems in other countries with that of our own, I think the conclusion that we have a superior system is unavoidable.

You gentlemen here read the extracts from Ostertag and other authorities, and you read the comments in our journals, but there are hundreds of men, in the southern part of Germany especially, who have never graduated, but who are appointed, and who supervise the killing of animals and inspect the meat, and in Ostertag's book you will notice that a great many times it says an animal had to be killed, say in a case of choke. The laymen quack will say it is liable to die, and they will kill it, and that meat is used for food, and so with very many other diseases.

Dr. Moore: Dr. Peters' remarks suggest a thought upon which I would like to ask for information. It is a common thing in this country to run across German practitioners who claim to have been practitioners under the German government, whom we know, from their work and what we can see and learn from them, are not qualified men, and I would like to ask if it is a fact that the German government does employ such men.

Dr. Peters: They are employed as inspectors but not by the government. Take the State of Wittenberg for example. Parties in that State occupying public positions similar to county commissioners here appoint Mr. So-and-So an inspector, and he may inspect for trichiniæ only. In Prussia it is necessary to receive instruction for twelve weeks, and I think that is the period at an abattoir, and an examination passed before they are allowed to practise inspection; but they are supposed to call in a veterinarian whenever they think that it is a contagious disease; but these people in a great many instances think they know more than the veterinarians (usually quacks do), and take upon themselves too much responsibility. In the German army and other government positions only qualified men are employed.

Dr. Moore: Another question: Dr. Peters states that it is the common practice of the empiric, for instance, when he is called and finds a case of choke which he thinks is going to prove fatal, to advise the destruction of the animal and its use as food. I would like to know if in such a case any inspection is made by other authorities?

Dr. Peters: Not if he is present before the animal is killed.

Dr. Stewart: I find in Zuill's Friedberger and Fröhner statements relative to diseases of food animals, that in many of the diseased conditions which are likely to destroy life, which are not amenable to treatment, they recommend the destruction of the animal and the use of the carcass for food purposes. For instance, if a cow was suffering from parturient paresis, milk fever, or was paralyzed, we may say moribund, would recommend that it be killed, dressed, and used for food. If a cow were suffering from traumatic pericarditis, in which the pericardial inflammation was of a purulent character, yet the animal was not quite dead, perhaps about to die, certainly could not be relieved by treatment—recommend that the animal be slaughtered and the flesh used for food. And so in many other cases in which in this country the flesh would be condemned as unfit for food. Viewed from this stand-point, American inspection is certainly much superior to German or French inspection. Animals are so abundant in this country, and the price of flesh so low, comparatively, that public sentiment demands its absolute freedom from disease, and would, I believe, often transcend the zeal of the inspector and reject what he passes, because their sentiment is not always founded upon knowledge. I do not know to what extent inspectors generally are governed or influenced by sentiment, but I know that with some it is a potent factor. If they would not like to eat the meat themselves they would not like anybody else to eat it, and put the condemnation mark upon it. Under the circumstance of the cheapness and abundance of meat in this country it seems to me that such a sentiment should be given some play.

Dr. Forbes: I do not know anything about the system of meat-inspection in Germany, but I have had a little experience with it as it is carried on in the city of Glasgow, Scotland, and know of my own personal knowledge that it is quite a common thing for veterinary surgeons when called in cases of parturient paresis, not amenable to treatment, immediately upon arriving at this conclusion they advise the owner to slaughter it and send it into the city for food. The inspector there is a policeman, who acts under the medical health officer, and not one-fourth of them know a diseased condition when they see it. In a case of parturition my employer and myself, after working several hours in a futile effort to relieve the cow, decided that we could do nothing further for her. She was on the point of collapse. The owner was so informed, and he decided to have the animal killed, which was done, the carcass transported to the city, and there placed on the market, so that the more we learn of others the more reason we have to be satisfied with American inspection.

Dr. Goode: Dr. Stewart's remarks remind me of one or two cases that came under my own observation in the city of Chattanooga, Tenn. In one case a very fat steer was brought in, suffering with what afterward proved to be actinomycosis. The matter was noised about in some way, and the captain of police was there and a crowd had congregated around, and the stockyard men telephoned to me to come down and see it. Before I got there the animal had been killed and not bled. It was thrown away at a loss of fifty dollars. They said that even if it was all right they were opposed to using it, for fear something would be said about it and it would damage their business. I said, " You could afford to use it on my say so, couldn't you?" They said, no; they did not care to risk it.

In another case I was called to treat a cow in a case of chronic prolapsus of the rectum. One night it came out, and we could not get it back. The cow was two months after calving and was fat, and I advised the owner to slaughter her for beef, but he said he did not want to do it. I placed an écraseur around the mass and cut it off, and the cow died from the shock, and he lost the value of the cow. These are two cases I know of where the owner incurred a loss just for fear of public opinion.

Dr. Moore: I think we ought to move a vote of thanks to the people of that community.

GENESEE VALLEY VETERINARY MEDICAL ASSOCIATION.

The annual meeting of this Association was held at the Livingston Hotel, Rochester, N. Y., January 25th. Members present: Drs. W. G. Dodds, A. G. Tegg, L. R. Webber, T. S. Rich, O. B. French, J. H. Taylor, E. Knight, A. T. Earl, W. J. Payn, N. N. Lefler, J. C. McKenzie, L. J. Palmer, A. McConnell, P. J. Johnson, G. C. Kesler, D. P. Webster, William Hunter, and Warren E. Stocking.

Interesting papers were presented by Drs. A. Y. Earl, A. McConnell, A. G. Tegg, L. R. Webber, and N. N. Lefler. During the afternoon session a clinic was held at Webber's livery stable.

Resolutions were passed on the deaths of Drs. E. T. Burns and I. A. Drinkwater. Resolutions were also passed in favor of the enactment of a State law preventing the importation of cattle into New York State without inspection, as follows: *Whereas*, Tuberculosis has and is increasing to an alarming extent among cattle in Western New York, thus causing extensive loss of cattle and endangering the public health; and as most of these cases are in cattle imported from adjoining States or traceable to infection from such cases; *Resolved*, That we, the members of the Genesee Valley Veterinary Medical Association, urgently call for the enactment of such laws as will give us protection and prevent this State from being made the dumping ground for diseased animals that cannot be sold in adjoining States, where they have laws preventing the importation of such diseased animals; and that we urge each member of this Association to call upon his representative in Assembly and Senate to urge the passage of such laws.

Elected to membership: Dr. J. E. Smith, Webster, N. Y.

The following officers were elected: President, Dr. W. G. Dodds; Vice-President, T. S. Rich; Secretary, E. Knight; Treasurer, L. R. Webber. Censors: Drs. A. G. Tegg, O. B. French, G. C. Kesler, L. J. Palmer, W. E. Stocking, and A. McConnell.

E. KNIGHT,
Secretary.

ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION.

THE eleventh annual meeting of this Association was held at the office of Dr. S. H. Swain, Decatur, Ill., January 10th and 11th. The first session was called to order at 1 P.M., with Dr. J. Osborne, of Nokomis, in the chair. The minutes of the previous meeting were read and approved, followed by the President's address, after which Dr. J. M. Reed, of Mattoon, read a most excellent paper on "Equine Obstetrics," leaving very little room for discussion.

A recess of twenty minutes was then taken in order to allow those present to witness the operation by Dr. S. H. Swain of firing for splint.

Dr. S. H. Swain, being next on the programme for a paper on "Navicular Arthritis," asked permission of the members to be allowed to substitute a report of a case of rabies in a horse, which was granted. Report proved very interesting and instructive to those present.

The meeting was then adjourned on motion until 7 P.M., when Dr. I. M. Luzader, of Nokomis, read a paper on "Tetanus," followed by a general discussion of this and preceding papers, after which, on motion, the session was adjourned until 8 A.M., January 11th.

January 11, 1900.

Meeting called to order promptly at 8 A.M. by President Osborne, and Dr. R. W. Brathwait, of Champaign, made a very interesting talk on "Enteritis," dwelling upon the various stages of the disease and their diagnosis, and giving his treatment for the same.

On motion, recess was now taken to give those present an opportunity to witness a post-mortem by Dr. A. Travis, of Litchfield, and Dr. R. W. Brathwait, of Champaign, on a cow which had died the preceding night of tuberculosis, and had been ordered brought to the sanitarium for that purpose.

Dr. V. G. Hunt, of Arcola, next read a paper on "Hydrophobia Equinine," responded to by Dr. R. W. Brathwait and Dr. S. H. Swain. This being a conclusion of the programme for the present meeting, the Association proceeded to hear the reports of the various committees, which were read and approved.

Officers were next elected for the ensuing year, as follows: President, Dr. V. G. Hunt, Arcola, Ill.; First Vice-President, Dr. J. H. Osborne, Nokomis, Ill.; Second Vice-President, Dr. J. M. Reed, Mattoon, Ill.; Secretary, Dr. W. A. Swain, Mt. Pulaski, Ill.; Treasurer, Dr. S. H. Swain, Decatur, Ill.

The newly-elected officers were then installed, and after the President had appointed the Standing Committees, the meeting was adjourned, on motion, to meet at Mattoon, Ill., August 8 and 9, 1900.

W. A. SWAIN,
Secretary.

PENNSYLVANIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS.

THE midwinter examinations of this board were held in Philadelphia on December 18 and 19, 1899. The following applicants for examination presented themselves: Dr. William J. Waugh, graduate of the Ontario Veterinary College, late veterinarian of the United States Army, located at Washington, Pa., and Dr. Warren J. Fretz, graduate of the American Veterinary College, located at Perkasie, Pa.

The Secretary reported a number of complaints alleging violations of the State laws, most of which had been adjusted without the necessity of recourse to law. In the case of one or two alleged veterinary dentists vigorous prosecution was authorized.

W. HORACE HOSKINS,
Secretary.

CHICAGO VETERINARY SOCIETY.

THE regular monthly meeting of this Society was called to order on Monday evening, January 8th, in the hall, 912 Masonic Temple. President Hughes presided. Twenty-five members and several visitors were present. The new meeting place was found to be entirely satisfactory, and many expressed regret that it could not be leased for one meeting each month.

Dr. M. F. Fish's application for membership having been favorably indorsed, was presented, and his election followed. The privileges accorded to physicians by the Telephone Company were recited by Dr. E. L. Quitman, and it was resolved upon his motion that a committee be appointed to confer with the proper officials of the company and ask them to grant veterinarians the free use of drug-store telephones in calling up their offices. President Hughes named the following who are to attend to the matter: Dr. E. L. Quitman, R. G. Walker, and A. C. Worms.

Dr. W. E. Howe presented a paper on "Post-mortem Inspection of Swine," which was greeted with enthusiasm, prolonged applause, and a lively discussion, following which the Society adjourned.

THE regular monthly meeting was convened on Monday evening, February 12th. President Hughes presided, and seventeen members were present. The President announced the inability and cause for the absence of Dr. James G. Fish, who intended to read a paper on "Post-mortem Inspection of Cattle," and in its stead Dr. E. L. Quitman had kindly agreed to present an essay on "Paralysis and Treatment," which was received with much favor and ended in a extended discussion of much interest to all.

Dr. O. R. Dubia reported a case of stringhalt due to an injury received by having the foot caught in the car-track, following which a case somewhat similar was reported by Dr. E. L. Quitman, in which stringhalt was due to an injury to the vertebra. Both cases were thoroughly discussed, and the meeting adjourned.

JOSEPH B. CLANCY,
Secretary.

CIRCULAR OF THE COMMITTEE OF ORGANIZATION OF THE FRENCH VETERINARY CONGRESS OF 1900.[1]

THE Congress of Veterinary Medicine at the Universal Exposition of Paris, September 7 to 11, 1900, inclusive.

A French veterinary congress will be held this year at Paris during the exposition, under the presidency of Senator Dorbot, veterinarian of Langres. It will meet September 7th to 11th, inclusive, at the same time as the international horse-show.

The committee has already received a large number of individual subscriptions in France, besides important subsidies allowed by many French veterinary societies.

The programme embraces the following subjects:

1. Certificates of origin and health.
2. Justification and codification of laws (reasons) for seizure of meats in abattoirs.
3. Organization of a veterinary sanitary service, and the necessity of making it uniform.
4. Production of horses, and the reorganization of studs.
5. The place of veterinarians in agricultural instruction.
6. The management of abattoirs from the sanitary point of view.
7. Knacker's establishments, from the stand-point of the infection of meats, and sanitary police of animals.

Although national (French) the veterinary congress of the exposition will accept with pleasure the membership of those foreign veterinarians who can make their visit to the exposition at the time of its meeting, or of those who wishing to remain in their own country would care to receive the reports and transactions of the congress. All foreign veterinarians who join the congress may take part in the discussions, but only French will have the right of a vote.

The committee trust that foreign veterinarians will consider favorably their appeal and accept their fraternal invitation to take part in the professional work of French veterinarians.

Already a number of foreign veterinarians have sent in their subscription for membership. Some foreign societies have also subscribed, and decided to send delegates.

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[1] Sent to foreign veterinary societies and journals.

The subscription has been fixed at ten francs (two dollars) for foreign and French veterinarians alike, and may be sent to any of the following:

1. M. Larmet, veterinarian of Besancon (Doubs), Secretary-General of the Congress.
2. M. Rossignol, veterinarian of Melun (Seine-et-Moone), member of Committee on Organization.
3. M. le Dr. Moreau, veterinarian of Paris, No. 380 Rue de Vangirard, Paris, Treasurer of the Congress.
4. M. Ch. Morot, veterinarian of Troyes (Aube), Adjunct Secretary of the Congress.

The committee beg that editors of veterinary journals will insert this circular in their next number. The committee also beg that the officers of veterinary societies will call attention of their members to this invitation.

CH. MOROT,
In the name of the Committee.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

THE meeting was called to order at eight o'clock P.M., January 12, 1900. Mr. Horner was appointed critic. It was moved, seconded, and carried to have 200 copies of the by-laws printed. A vote of thanks was extended to Dr. Pearson and Mr. Gillingham for the books which they contributed to the library; also a vote of thanks to the Banquet Committee for the faithful performance of their duties. Dr. Harger then gave a very interesting address on the subject of "Saline Transfusion." A vote of thanks was extended to Dr. Harger for his excellent address. The critic had no report to make. Adjourned at 9.30 P.M.

January 26th. The meeting was called to order at eight o'clock P.M. Mr. Powell was appointed critic. Next in order was the election of new officers. The result of the election was as follows: President, Mr. Cornman; Vice-President, Mr. Powell; Treasurer, Mr. Young; Executive Committee, Senior Class, Mr. Nolan; Junior Class, Mr. Walters, Mr. Watson; Freshmen Class, Mr. Paget; Librarian, Mr. Bassler.

We were next favored by an address by Dr. C. J. Marshall. A vote of thanks was extended to Dr. Marshall. Next in order was the Treasurer's report, which was accepted. The critic's report was very favorable. Adjourned at 9.30 P.M.

The meeting was called to order at eight o'clock P.M., February 9, 1900. Mr. Tallman was appointed critic. Mr. Andress was proposed and elected to membership.

Messrs. Young, Bassler, and Glass were appointed a committee to interview our several professors concerning subscriptions for the purpose of purchasing books for the library. Mr. Horner then favored the meeting by a paper on "Swine Plague and Hog Cholera." Next in order was a debate:

Resolved, That no stallion should be used for public service excepting such as has been examined and approved by a board of experts, the board to include a veterinarian and the examination to cover conformation and soundness.

Affirmative—Messrs. Young, Colton, and Glass. Negative—Messrs. Nolan, Gilliland, and McClintock. The judges, Messrs. Powell, Shore, and Zollinger, decided in favor of the negative side.

General debate followed and was very spirited, many taking part, as did also Drs. Pearson and Flower. The decision of the house was in favor of the negative side. A vote of thanks was extended to Drs. Pearson and Flower for the part they took in the general debate. Next was the Treasurer's report, which was accepted. The chair then appointed Mr. Shore and Mr. Glass on the Room Committee to fill the vacancies caused by the election to office of Messrs. Bassler and Paget. Mr. Hughes still serves as the member from the Senior Class.

It was moved, seconded, and carried to have the several pictures for the Reading-room framed.

A vote of thanks was extended to the following gentlemen for the books which they contributed to the library: Drs. Jacob, Hoskins, Huidekoper, and Mr. Mayer.

The critic's report was very favorable. Adjourned at 10 P.M.

The meeting was called to order at eight o'clock P.M., February 23, 1900. It was moved, seconded, and carried to dispense with the regular order of business. The meeting was then favored by an excellent address on the "Hackney Horse," by Mr. E. W. Twaddell. A vote of thanks was extended to Mr. Twaddell for his interesting and instructive address. Dr. Blount also gave a brief outline of his experience on board a transport from New Orleans to South Africa.

Adjourned at 10 o'clock P.M.

HARRY E. BENDER,
Secretary.

THE VETERINARY ASSOCIATION OF MANITOBA.

THE annual meeting of this Association was held in the city of Winnipeg, February 20, 1900, the President, Dr. H. D. Smith, in the chair. A large and representative gathering of members from all parts of the province made this one of the best meetings the Association has ever held. The auditors reported the financial affairs in first-rate condition, and the Secretary showed that the membership now amounted to sixty-eight—the largest in the history of the Association.

Several interesting papers were read. Mr. W. Swenerton, of Carberry, reported a case of "Equine Tuberculosis" which presented many interesting features. In the discussion which followed Dr. Martin stated the facts relating to a similar case in his own practice, where the evidence of infection from tuberculous cows was very strong, the horse in question belonging to a dairyman who stabled the animal with his cows.

Mr. J. A. Stevenson then read a most interesting essay on "Hog Cholera"—a disease which is, fortunately, almost unknown in this province. The last outbreak was about the year 1884, and up to the present the province was free from it. Owing to stringent measures now in force the present outbreak was confined to a few farms in the vicinity of Carman, and he had every reason to think it would be successfully stamped out.

This was followed by an essay on "Tuberculosis," by Mr. W. H. Lake, of Miami, which, in the absence of the essayist, was read by the Secretary.

A motion of condolence upon the death of our late Vice-President, J.

Spiers, of Virden, was passed and the Secretary instructed to forward a copy to Mrs. Spiers.

The following gentlemen were elected officers for the ensuing year: President, J. G. Rutherford, M. P., of Portage la Prairie; Vice-President, J. F. Fisher, V.S., Brandon; Secretary-Treasurer and Registrar, F. Torrance, D.V.S., Winnipeg; Councillors, W. A. Dunbar, V.S.; W. R. Taylor, V.S., W. E. Martin, V.S., and A. E. Williamson, V.S. The examiners are Messrs. Dunbar, Martin, and Torrance.

F. TORRANCE,
Secretary.

MAINE VETERINARY MEDICAL ASSOCIATION.

THE regular annual meeting was held at Hotel North, Augusta, Wednesday, January 10th, at 7.30 P.M. A small number of members were present. The minutes of the previous meeting were read and accepted.

Dr. A. Joly, for the Committee on Clinics, reported that all the cases operated on at the meeting in October were successful except one case of spavin, which was cauterized.

Election of officers resulted as follows: Dr. A. Joly, Waterville, President; Dr. C. L. Blakely, Augusta, Vice-President. Dr. I. L. Salley was re-elected Secretary, but declined to serve, and Dr. F. E. Freeman, of Rockland, was elected. Dr. I. L. Salley was elected Treasurer. Drs. Russel, Murch, and Cleaves were appointed as the Executive Committee.

Dr. Blakely reported a case of angioleucitis. Dr. Salley reported a case of purpura hemorrhagica followed by trismus to an extent that the patient was unable to eat much but slops, and is in this condition at the present time. Considerable discussion followed the report of these cases.

Drs. Russel and Murch were appointed to read papers at the next meeting. Voted to adjourn to meet at Bangor in April.

I. L. SALLEY,
Secretary.

THE WISCONSIN SOCIETY OF VETERINARY GRADUATES.

THE semi-annual meeting was held at the Kirby House, Milwaukee, September 13, 1899. The meeting was called to order by the President, Dr. Roberts, at 2 P.M., in the parlors of the Kirby House. Present: Drs. H. Arpke, W. G. Clark, C. Evans, E. R. Flack, C. H. Ormond, R. Kuoni, G. Ed. Leech, E. L. Morgenroth, E. H. Newton, J. F. Roub, D. Roberts, S. S. Snyder, and L. A. Wright. Visitors: G. W. Butler, Milwaukee; E. A. Manuel, Desplaines, Ill.; A. R. Wake, Cudahy; Jos. Pfieffer, Sheboygan; W. E. A. Wyman, Milwaukee; Wm. Voss, Kiel; H. F. Eckert, Markesan; P. J. Wilkinson, Oconomowoc; S. J. Collins, Reedsburg, and E. A. McCullough, Delevan.

The minutes of the last meeting were read and approved. The following applications for membership were received: Drs. W. E. A. Wyman, Wm. Voss, H. F. Eckert, P. J. Wilkinson, and S. J. Collins.

In the absence of the censors the President appointed as a commitee to examine the applications Drs. Roub, Clark, and Ormond. A recess was taken until the committee reported on the applications. After the meeting was called to order the committee reported favorably on the applications.

On motion, the candidates were voted on by acclamation. The vote was taken and the several gentlemen were declared elected members of the Society.

Dr. Leech reported on behalf of the Committee on Legislation in regard to the law passed at the last session of the Legislature. The question of prosecution of non-graduates under the new law was discussed by Drs. Leech, Roub, Ormond, Flack, Wright, and Roberts.

Dr. Hartwig not being present, his paper on "Parturient Apoplexy" was read by the Secretary. Discussed by Drs. Wright, Roub, Wyman, Clark, Flack, Arpke, Collins, Morgenroth, Kuoni, and Snyder.

On motion, the Society adjourned to meet at 8 P.M.

Evening Session. The meeting was called to order by the President at 8 P.M. In addition to those present at the afternoon session were Bureau of Animal Industry Inspectors Drs. A. E. Behnke, H. Caldwell, W. J. Stewart, and R. H. Harrison. Several of the leading horseshoers of the city were also present.

The meeting was opened under the head of applications for membership, and the application of Dr. E. A. McCullough was received. The application being reported on favorably by the censors, it was balloted on, and Dr. McCullough was declared elected to membership.

Dr. L. A. Wright read a very able paper on the "Workings of Heredity." Discussed by Drs. Roub, Schmitt, Leech, Flack, Wyman, and Butler. On motion, the discussion was closed and the essayist excused.

Dr. E. L. Morgenroth gave a short talk on shoeing and exhibited several shoes. Discussed by Drs. Arpke, Schmitt, Roub, Wright, and Leech, also by Messrs. Widemeyer and Dorman, who gave us some very good ideas in regard to shoeing. On motion, the discussion was closed and the essayist excused. On motion, the Society adjourned to meet in Madison, subject to the call of the President and Secretary.

Thursday morning at 8.30 the Society met at Dr. W. E. A. Wyman's hospital. Dr. J. F. Roub performed a skilful and successful operation on a ridgling and explained his method of operating. Dr. Wyman performed cunean tenectomy for bone spavin.

W. G. CLARK,
Secretary.

PERSONALS.

Dr. A. D. Galbraith, of Greensburg, Ind., is now located at Knoxville, Tenn.

Mr. Alexander Eger, the veterinary bookseller and publisher of Chicago, made a visit to all the leading veterinary colleges and centres in February.

Dr. G. E. Hutton, of Kansas, has been selected superintendent of the Monmouth (Ill.) driving-park.

Dr. E. P. Niles, of Blacksburg, Va., recently purchased a very speedy trotting mare, "Nelly Jewett."

Dr. Andrew Smith, of Toronto, is one of the directors of the Canadian Hackney Society.

Dr. H. D. Gill, of the JOURNAL staff, added another fast trotter to his string at the Fasig-Tipton sale in New York in January.

Dr. F. W. Huntington, of Portland, Maine, has retired as secretary and manager of Rigby Park Track Association.

Dr. Stephen L. Blount, who recently accompanied a consignment of mules to South Africa for the English Government, has returned again to the United States. Out of some nine hundred animals shipped less than thirty were lost from the various diseases and accidents common to ocean voyages. Dr. Blount met with a painful accident himself in falling down a hatchway, but fortunately no serious injuries were the result of the mishap.

Dr. J. R. Hagyard, of Lexington, Ky., has associated with him in his practice and infirmary Dr. James T. Shannon.

Farmer Miles, of Charleston, Ill., exacts of his pupils a royalty of five dollars for each ridgling castrated for a period of ten years after being instructed.

Dr. Fred. Evans, of Grand Island, Neb., is the owner of a fast-stepping colt by the noted sire "Guelph." This promising colt and the enjoyment of an increasing practice makes Dr. Evans' lot in life a happy one.

Dr. W. H. Heckenberger, of Catasauqua, Pa., recently met with a painful accident, injuring his hip and confining him to his bed.

Dr. A. Hanhoeffer, of Strasburg, Ont., has succeeded Dr. Owen Reist as sanitary inspector for his district.

Dr. Owen Reist, of Kossuth, Ont., resigned the position of sanitary inspector of Waterloo township and entered the race for municipal councillor, to which he was elected.

Dr. Frank T. Shannon, of the Bureau of Animal Industry, has been transferred from Los Angeles, Cal., to Washington, D. C.

Drs. Leonard Pearson, William H. Ridge, and C. J. Marshall have been selected to fill the rôle of veterinarians to the Philadelphia horse-show.

Dr. M. Jacobs, resident surgeon of the veterinary department, and Messrs. Cornman and Young, of the senior class of the University of Pennsylvania, were visitors to the dog-show in New York in February.

Dr. John J. Repp, of Ames, Iowa, reports a hopeful outlook for veterinary legislation in that State. The proposed law regulating the practice of veterinary science was favorably considered by the lower branch of the legislature.

Dr. J. Stewart Lacock, of Allegheny, was a visitor to Philadelphia in February on his return from the New York dog-show.

Dr. Alexander Glass, of Philadelphia, was an interested spectator of the many valuable canines shown in New York at the national dog-show.

Dr. John Wende, of Buffalo, N. Y., has just suffered the unexpected loss of his brother, Theodore Wende, a prominent member of the Buffalo Bar. Death followed an operation for appendicitis of a few days' development.

Dr. Thomas B. Young, of Media, Pa., fills the rôle of Recorder for Delaware County, and takes an active part in political affairs in that county.

Dr. J. S. Pollard, of Providence, R. I., fills the rôle of State veterinarian for that Commonwealth.

Dr. William Dougherty, of Baltimore, Md., has been on the sick-list for some two weeks. Dr. Martinet has been taking care of his practice.

Among the boardwalk visitors to Atlantic City on Sunday, March 11th, were to be noted Dr. A. T. Sellers, of Camden, N. J., and Dr. W. Horace Hoskins, of Philadelphia, both of whom have now large commercial interests in this Mecca by the sea.

Dr. Bryan Pendry has passed the necessary examination and received a promotion to second lieutenant of the Thirteenth Regiment of Greater New York.

Dr. William Folsetter, of Dallas, Tex., and Dr. W. A. Knight, of Houston, Tex., pursued a post-graduate course at the Kansas City Veterinary College during January and February.

Dr. Leonard Pearson, of Philadelphia, was a visitor and speaker at several meetings of Farmers' Institutes in Western Pennsylvania in March.

The Kansas City Kennel Club held its third annual bench show in the Kansas City convention hall. The display of dogs was excellent, the attendance was large, and the show was a howling success in every particular. Dr. R. C. Moore served as official veterinarian.

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THE ACTION OF CERTAIN SOMNIFACIENTS ON THE HORSE.[1]

BY E. STANTON MUIR, PH.G., V.M.D.,
PHILADELPHIA, PA.

THE action, on the human family, of those drugs termed somnifacients is sometimes accompanied by delirium, while in the majority of cases they have no other action than that of an hypnotic. On the horse and other solipeds they might be more correctly termed delirifacients, as their action is accompanied by a much more extended period of excitability ; in fact, the somnolent action is often entirely disguised by the primary period of delirium, or the excitability produced by the drug is so great that its soporific action on the brain is entirely overcome. The comparative difference in the development between the brain and spinal cord in man is greater than that in the horse, and this has always seemed to me to be the reason of this marked difference in the action of those drugs whose force is directed primarily to the nervous system. We know that these drugs will act first on that portion of the nervous system which is best developed, and, for this reason, we can account for the pronounced difference in their action on the horse from that on man.

The physiological action of drugs on the horse is not given the study and attention that it merits. We give too many drugs to our patients (I refer to the horse), expecting certain results from our knowledge of their physiological action on man or from experiments on the dog, but not from a thorough knowledge gained from experiments on the horse. Again, we apply certain forms of medication to the horse and look for certain results, not because we have a rational reason for expecting such results, but because we know from former personal experience or from the clinical experience of others that such results are likely to follow. I am aware that this smacks of empirical therapeutics, but however much it may be to the discredit of the advanced veterinarian of to-day it is nevertheless true. We take advanced courses in surgery, practice, bacteriology, sanitary science, etc., all of which redound to the credit of the school adopting such advanced teaching, tend to further elevate our profession, and make more thorough, more intelligent, and more successful veterinarians, but this important part of a veterinarian's education—veterinary therapeutics—is neglected.

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[1] Read before the Pennsylvania State Veterinary Medical Association, March 7, 1900.

I cite these facts to bring as forcibly as possible to our notice the necessity for more experimental work in this branch.

Those drugs which produce sleep or whose chief physiological action is that of producing somnolence, are classed under various names: soporifics, hypnotics, narcotics, somnifacients, etc., but because the last name, somnifacients, translated means "sleep-producer," we have adopted this name for the drugs used in this line of experiments and have named this paper "The Physiological Action of Certain Somnifacients on the Horse." This paper details the physiological action of three drugs as shown in a series of experiments on fifteen horses.

The drugs used were P. & W.'s Sulphate of Morphia; P. D. & Co.'s normal liquid Indian Cannabis, and Schering's Crystals of Chloral. In some cases the drugs were administered subcutaneously, but in most cases intravenous injections were made, as we, of course, obtained quicker and more satisfactory results from the latter method of administering the drugs.

I wish here to speak a few words in favor of the administration of therapeutic agents by the intravenous and subcutaneous methods. The results are obtained much quicker, the drug can be administered more easily, and with average care the danger is almost *nil.* During this and another line of experiments there were a total of about eighty injections made, most of them intravenous, without the formation of a single abscess or any other untoward result. All the antiseptic precautions used were to have clean needles and sponge the skin with carbolic acid solution, 5 per cent., before making the injection. In fact, I do not think there is any more, if as much, danger in these forms of administering drugs as there is of the end of a drenching bottle breaking off and being swallowed by the animal when your remedial agent is administered by the mouth.

MORPHIA—EXPERIMENT No. 1. Bay gelding, fifteen or sixteen years old, fifteen and one-half hands, weighing 760 pounds. Temperature, 37.3° C. (99.2° F.); pulse soft and regular; respirations

6; heart, 35, regular, and impact good. Animal was poorly nourished. The first subcutaneous injection of 0.2 (3 grs.) of morphia sulphate was made at 11.17 A.M., and from that time until 2.59 P.M., three hours and forty-two minutes, he received in all 1.2 (18 grs.) of the salt in 0.2 doses. There was very little change in the animal until 1.07 P.M., a few minutes after the third dose of 0.2 (3 grs.) was given, at which time he became very restless and excitable. The pulse at this time was 50, full and soft, the heart irregular, and the respirations increased to 10. At 1.45 P.M. there was a partial loss of coördination; he was staggering, decidedly delirious, but not sleepy. The respirations became more and more labored. A profuse ptyalism was noted at 1.29 P.M., which continued with more or less intensity up to 4.20 P.M. From this hour until 8 P.M. the abnormal symptoms gradually subsided, except an excitable condition when approached. The following morning there were no signs to show that he had been subjected to the action of any medicinal agent. At 2.30 P.M., after 1 had been given, in five 0.2 doses, the pulse rose to 60; was full but soft; heart was rapid and very irregular, and at this time the excitability was most pronounced.

The prominent symptoms noticed during this experiment were great excitability, the least noise causing him to become extremely agitated, partial loss of coördination, ptyalism, labored respirations, and the action on the heart.

EXPERIMENT No. 2. Gray gelding, eight years old, fifteen and one-half hands high, weighing 800 pounds. Temperature, 37.7° C. (100° F.); pulse, heart, and respirations normal. General condition of the animal was poor. In this experiment the sulphate of morphine, in aqueous solution, was injected directly into the jugular vein. The first injection of 0.165 was made at 12.56 P.M. From this time until 2.48 P.M. (one hour and fifty-two minutes) I injected 1.09 (16.3 grs.) of the salt in doses not exceeding 0.2. At this hour (2.48) the pupils, which previously were normal or slightly contracted, became dilated; the pulse ran up to 84, and was almost imperceptible; he began to tremble all over the body, and became decidedly delirious. These symptoms gradually subsided until at 3.05 P.M. there was only a slight uneasiness noticed.

At 3.21 and at 3.51 I gave two more 0.2 doses, and at 4.05 P.M. he was in the same excitable condition noticed in Experiment No. 1; was standing with his head pushed up in the corner of the stall when not approached or annoyed; there was a profuse flow of saliva. At 4.20 he had received in all 1.49 (22 grs.) of the salt, at which time the temperature was 102.8° F., pulse full and very rapid, heart irregular. All symptoms except the excitability gradually subsided, and at 8 P.M. he was only slightly nervous. Next morning his condition was normal.

The *prominent symptoms* were excitability, trembling, labored respiration, rapid heart, and profuse ptyalism.

EXPERIMENT No. 3. Inasmuch as the doses given in Experiments Nos. 1 and 2 were small and frequently repeated, I decided to try the action of one large intravenous dose, and for this purpose I secured a gray gelding, eight years old, fifteen and one-half hands high, weighing 800 pounds. The temperature, respiration, and pulse were normal, the heart was strong and impact good. His condition was fair. At 10.55 A.M. injected 1 (15.4 grs.) into the jugular, and in two minutes he became very restless; at 11.15 he was decidedly delirious, very easily excited, would quid his hay; the pupils were widely dilated; the pulse was full and rapid, the heart regular and 84. At 1 P.M., one hour and five minutes after the administration of the drug, the action had about passed off, and his condition was about normal.

The *prominent symptoms* noted here were not unlike those seen in Experiments Nos. 1 and 2, viz.: excitability, delirium, but no sleep, dilated pupils; but in this case I noticed no flow of saliva, nor did the symptoms last so long.

EXPERIMENT No. 4. The last experiment with this salt was on a bay gelding, thirteen years old, fifteen and a quarter hands high, weighing 1050 pounds. Temperature 37.4° C., pulse 48, respirations 12, heart normal, impact good, and his general condition very good. In this case I injected 1 of sulphate of morphia, in aqueous solution, into the jugular at 12.04 P.M., and from that time until 2 he showed all those nervous symptoms which characterized the whole line of experiments, the marked excitability showing almost immediately after administering the drug, and increasing in intensity until 1 P.M., when it slowly subsided. A staggering gait was noticed five minutes after the injection, and the pupil was dilated. At 12.17 P.M. a tetanic condition existed for a short time, from 12.30 until 12.49, shown by a throwing back of the head and elevation of the tail. Ptyalism was profuse, starting five minutes after giving the injection, and continuing until 2.15 P.M. At 12.10 the pulse rose to 66, but was strong, and at 12.17 P.M. it jumped to 84. At 2 P.M. the temperature had risen to 38.1° C., the heart was 84 and strong, and the respirations were labored.

The *prominent symptoms* noticed were the characteristic excitable condition, staggering gait (loss of coördination), profuse ptyalism, dilated pupils.

The symptoms which showed in each of the experiments were great excitability, delirium, partial loss of coördination, and dilated pupils, and in all except No. 3 a profuse flow of saliva and a slight elevation of temperature.

CHLORAL, or as it was formerly known, hydrate of chloral, was the next drug experimented with. I used this on three horses. The solution used was chloralis, 150 grammes, dissolved in sufficient water to make 300 c.c.

EXPERIMENT No. 5 was on a bay gelding about fourteen years old, standing fifteen hands and three inches, and in fair condition. Temperature was 99.4° F., pulse normal, respiration 6, heart regular and fairly strong. General condition of this animal was fair. At 11.53 A.M. I injected an aqueous solution containing 15 (℥ss) of chloral into the vein of the neck. No change occurring up to 12.15 P.M., I again gave him the same quantity in the same manner. In five minutes after the second dose he was gaping constantly and swaying from side to side. At 1.25 P.M. the temperature had risen 1°, pulse was 60 and full, respirations increased from 6 to 12, but the heart was regular; he was standing quiet except some muscular tremors and was very sleepy. At 1.45 P.M. he received the third injection of 15 grammes, and from that time until 2.30 he was very sleepy and could barely stand, was constantly swaying from side to side, and his head was bobbing. At 3 P.M. he began to arouse, and all symptoms except drowsiness had passed.

Prominent symptoms were sleepiness, with a slight increase in temperature and respirations.

EXPERIMENT No. 6. Bay gelding, aged, sixteen and a quarter hands high. Temperature 99° F., pulse 36, respirations 36; heart slow, full, and regular. General condition poor. At 12 noon I injected 30 grammes of chloral into the jugular, and up to 12.28 P.M. noted no change in his condition. At that time I gave him the second 30, and in two minutes he fell down, I thought, to die, but it was only deep sleep, which continued until 12.52, when he unsuccessfully attempted to rise. During this time the respirations increased to 24, but were deep and regular, not jerky. The heart increased in frequency up to 72, and was labored. Up to 1.30 he had several times made unsuccessful attempts to rise, would drop off into a sleep, from which he was easily aroused. At this hour the temperature was the same, pulse was 36, respirations

30, deep and labored, and the heart regular. At 2.30 he arose with a little help, and the sleepy condition soon passed off, but the muscular weakness continued for several hours.

The *prominent symptoms* were sleep and muscular weakness, increase in frequency of the heart's action and respiration.

EXPERIMENT No. 7. Bay gelding, twelve years old, fifteen and one-half hands high, in good condition. Temperature 99.2° F., pulse 44, respirations normal; heart regular and strong. At 12 noon I administered 30 grammes chloral intravenously, which in four minutes caused the respirations to become deep, and all the symptoms recorded in the last experiment were noted. The heart became weak and irregular shortly after administering the drug. At 1.30 P.M. the temperature had risen to 101° F., the pulse to 60, respirations to 26, and the heart had become regular. The animal was standing quiet. At 1.45 he received 15 grammes of chloral, which caused him to sway from side to side and almost fall down in ten minutes. At 2.15 he was standing quiet, but would stagger when annoyed or on attempting to move. At 2.45 the symptoms were abating, and at 5 o'clock he was in about his normal condition and eating hay.

The *prominent symptoms* were like those of the other two experiments—sleep and muscular weakness, slight increase in temperature, respiration, and pulse.

The symptoms noticed in each of these experiments were sleep and apparent muscular weakness, and a slight increase in temperature. According to the best authorities, chloral kills by causing a loss of temperature, so when we remember the fact that we did not have a fall in temperature, even after we gave 60 grammes in the space of thirty minutes, we can feel sure that we were not near the toxic point of the drug, and that it is perfectly safe to give that amount in one hour's time intravenously in two doses.

(To be continued.)

BELLADONNA.[1]

BY L. A. MERILLAT, V.S.,
CHICAGO, ILL.

OFFICIAL belladonna is the root or leaf of the atropa belladonna, a native plant of England and Continental Europe. In its wild state it thrives best amidst rubbish, around old ruins, along old walls, and especially when these places are protected by shade. It will also grow vigorously when cultivated under favorable conditions in any tropical country. Atropa belladonna (commonly known as the deadly night-shade) is an herbaceous, perennial solanaceæ, growing to the height of about one metre, flowering with beautiful red bell-shaped flowers in July, and ripening its reddish berries in September.

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[1] Read before the Chicago Veterinary Society, April 9, 1900.

The entire plant contains two alkaloids, occurring as salts of malic acid, chlorophyll, wax, starch, gum, albumin, lignin, and various salts; but the United States and British *Pharmacopœias* demand the use of the leaves and roots only. The leaves yield the alkaloid most abundantly, the root, fruit, and branches being next in importance in the order named. Chemically, botanically, and medicinally atropa belladonna simulates:

1. Datura stramonium (thorn apple).
2. Hyoscyamus niger (henbane).
3. Buboisia myoporoides..

Medicinally besides the above it resembles:

4. Cannabis sativa (Indian hemp).
5. Erythroxylon coca (coca).

Botanically we may add:

6. Capsicum fastigiatum (Cayenne pepper).
7. Nicotiana tabacum (tobacco).
8. Solanum dulcamara (bittersweet).

The medicinal activity of atropa belladonna depends entirely upon an alkaloid which Brandes christened atropine, and a less important alkaloid named belladonnine. Atropine is an alkaline principle with the formula $C_{17}H_{23}NO_3$. The formula for belladonnine is $C_{17}H_{23}NO_4$, containing one atom of oxygen to each molecule more than atropine.

It has been said that hyoscyamine, which has the same formula as atropine, but differs physically, is the true natural alkaloid of atropa belladonna, and that atropine is a conversion product. Chemically and medicinally atropine is identical with hyoscyamine, hyoscine, duboisine, and daturine, differing only in their physical constitution. White and Wilcox state that hyoscyamine and atropine occur together in atropa belladonna, but are not readily separated. Ladenburg regards daturine as nothing more than a mixture of atropine and hyoscyamine, while von Planta found and has since proven that daturine and atropine do not differ at all. This discrepancy is, however, of no great importance to the therapist, but we should know that:

1. Atropine is found in atropa belladonna and datura stramonium.
2. Hyoscyamine is in hyoscyamus niger, duboisia myoporoides, datura stramonium, and probably in atropa belladonna.
3. Hyoscine in hyoscyamus niger only.
4. Daturine in datura stramonium only.
5. Duboisine in duboisia myoporoides only.
6. Belladonnine in atropa belladonna only.

The preparations for veterinarians are:

1. Extractum belladonnæ radicis fluidum.
2. Extractum belladonnæ foliorum fluidum.
3. Atropinæ sulphas.
4. Homatropinæ hydrobromas.

The fluid extract of the leaves and the root are of uniform strength, so that it does not matter which of these two preparations is selected. The fresh leaves and roots should contain from 0.2 per cent. to 0.6 per cent. of atropine, the average being about 0.4 per cent. In regard to the strength of fluid extracts, if the product is pure and reliable, it should contain 0.004 grammes of atropine to the gramme—*i. e.*, each minim should contain about $\frac{1}{250}$ grain, and each fluidounce 1.8 grain of atropine. The fluid extract of belladonna, like many prepared drugs, varies greatly in potency, some samples being entirely wanting in medicinal activity. A prominent physician prescribed sixty grammes (two-ounce bottle) of fluid extract of belladonna for a small boy, to be taken in two-minim doses every two hours. The boy misunderstood the directions, and took two teaspoonfuls at each dose, and returned in the morning for more medicine, feeling none the worse for the error. A horse drenched with one pint (280 grammes) worked the following day without apparent inconvenience. When we take into consideration the "powerful" as well as the reliable effect of atropine itself, it is essential to demand some assurance of reliability in procuring fluid extracts which the above instances show conclusively that it is not always reliable.

The Sulphate of Atropine. The atropine sulphate is a very bitter, nauseating crystalline powder, obtained by dissolving atropine in dilute sulphuric acid. It is soluble in 0.4 parts of water and in about 6 parts of alcohol. Its formula is $(C_{17}H_{23}NO_3) = 2H_2SO_4$.

The hydrobromate of homatropine is a white crystalline substance prepared by heating atropine $(C_8H_{15}NO)X$ with oxytoluic acid in the presence of hydrochloric acid, and then neutralizing the product with hydrobromic acid. It was introduced into human ophthalmic practice about 1890, and is now coming into general use as a substitute for atropine as a mydriatic.

It is very expensive, and will be excluded from the veterinary pharmacy for some time. It is soluble in ten parts of water and in 133 parts of alcohol.

Physiological Action of Belladonna. Externally, if applied with substances which are absorbed into the skin, or if applied to a wound or mucous membrane, belladonna will paralyze the terminals of sensory, secretory, and motor nerves. It has a special action as a depressant to sensory nerves, and, when there is pain, is therefore an anodyne. It will dilate the capillaries and lessen the secretions of the skin and mucous membranes to which it is applied.

Internally its action is probably more complex than any of the more common medicines. Although it really has but one action, the secondary effects as a result are complicated to the extreme. This one action is that of paralyzing the periphery of the nervous system, to which might be added, *especially of secretory nerves.* The sensory and motor also share in the depression, but not to the same extent as the secretory nerves. As a result of this depression, the following phenomena is observed:

1. By depressing secretory nerves the whole aerial mucosa is markedly desiccated. The extreme dryness of the throat in human patients is a manifestation of what belladonna does to the whole respiratory mucosa. The secretion of milk is greatly diminished, and in some cases entirely arrested. Sudation is greatly depressed or even suspended, and as a consequence the skin becomes dry. The intestinal secretions are only temporarily suspended, if at all. The action of belladonna on the intestinal secretions is not well demonstrated, but it is not disputed that the effect upon the intestinal secretion is less than upon other secretions. Its action upon the renal secretion is somewhat uncertain on account of the depressing action upon the sudoriparous glands. The function of the skin being suspended, belladonna may as a result actually increase the activity of the kidneys. On the salivary secretion the action is decided, the parotid and submaxillary glands sharing specially in the depression.

2. By paralyzing inhibitory nerves the heart's action is augmented. Both the number and force of the heart-beats are increased, but more especially the former. This action of belladonna is due

to paralysis of the periphery of the vagus, which inhibits the heart's action. By paralyzing the periphery of the splanchnics, belladonna augments the intestinal activity, especially peristalsis, the intestinal secretion sharing slightly from this indirect stimulation. The first effect of the drug upon the secretion of the bowels, as already stated, is that of suppression; but later, when the inhibitory nerves become depressed, the intestinal glands resume at least their normal activity.

3. By paralyzing motor nerves the voluntary muscles become paralyzed, but this effect is noticed only in the later stages of belladonna poisoning. In ordinary medicinal dosage the effect on voluntary muscles may be said to be negative, but upon involuntary muscles its action is marked, and upon this action the real value of belladonna as a curative agent largely depends. It paralyzes the vasomotor constrictor nerves, especially of the capillary system, and so increases their lumen as to almost produce a pathological condition. The surface of the body becomes reddened and engorged with blood, and the mucous membranes are affected likewise. The organism is brought into a state that eminently resembles the first stage of a fever or an inflammatory disease—*i. e.*, augmented heart's action with heat, redness, engorgement, and dryness of the surface of the body. The capillaries of the lungs being similarly affected, the respiratory area is increased. More blood is oxidized and more CO_2 is eliminated. With the heart stimulated into increased activity, the capillaries of the great respiratory area active and engorged, belladonna acts as a powerful stimulant to the respiratory function —a feature possessed by no other drug. The periphery of the third nerve is paralyzed, and thus the elastic fibres of the iris contract and dilate the pupil. It was once said that atropine dilated the pupil by stimulating the sympathetic filaments of the iris, but as this theory has never been proven, and since it is difficult to conceive how a drug could depress one nerve and at the same time and under the same condition stimulate another, it is a statement that deserves no serious consideration. When the third nerve is cut the pupil dilates precisely as it does when paralyzed with atropine, therefore the mydriatic action of belladonna is easily comprehended.

4. By paralyzing sensory nerves belladonna becomes an analgesic; but in this connection it is inferior to opium. When applied locally in a more or less concentrated form it does relieve pain, but internally it does not rank high as a pain-killer. It does, however,

have a soothing effect upon the urinary tract and probably upon the generative organs.

Brain and Spinal Cord. The only medicinal action that belladonna has upon the brain and spinal cord is its influence on the respiratory and vasomotor centres.

SUMMARY. 1. Belladonna is a cardiac stimulant, increasing particularly the number of heart beats.

2. It arrests secretions of the skin (antihidrotic); the mucous membrane, especially the bronchial; the salivary glands (antisialagogue); and of the mammæ (antigalactagogue).

3. It does not have a marked effect on intestinal secretion, only temporarily suspending it.

4. It slightly augments peristalsis, but sufficiently to warrant its use for this purpose.

5. It stimulates the respiratory function, and in fact increases the capacity of the lungs.

6. It dilates the pupil (mydriatic).

7. Internally it has no marked effect on pain, except on the urino-generative tract, but ranks high as a local anodyne.

8. It dilates the capillaries and stimulates the action of the heart, and is therefore stimulant to the peripheric circulation.

Therapeutics. Belladonna has two general indications, viz., inflammation and passive hyperæmia. In any of the organic inflammatory diseases, or in any inflammatory condition, belladonna deserves to be considered in connection with their therapeutics. To say that belladonna is indicated in inflammation seems a very broad statement, and one which will probably be accepted unchallenged; but when the pathological process (inflammation) is carefully reviewed and the total effects of the drug carefully weighed, the statement is not so ambiguous as it seemed without consideration.

The period of inflammation in which belladonna is useful, if not almost a curative agent, is the stage succeeding the stage of engorgement—*i. e.*, the second or moist stage. Its tendency here is to correct the vascular alteration and to limit exudations, which in croupous, catarrhal, diphtheritic inflammation is precisely what is desired. To limit the exudations of bronchitis, laryngitis, or pulmonitis is no more or less than decreasing the ravages of inflammation, especially in the latter. When the inflammatory exudates gradually close the respiratory tract, it is part of the great battle to combat them; and besides, in this disease, that part of the lung that is not affected is rendered more capable of performing its function.

In these respiratory diseases belladonna also possesses the property of preventing cough, which is caused by the inflammatory secretions as well as the inflammation itself—in the former by drying secretions, and in the latter by allaying the irritation. In pleuritis it should prevent hydrothorax, although I cannot substantiate the statement from experience, as I have never administered it with this end in view.

In secondary nephritis occurring along the course of infectious diseases, especially when the condition has been aggravated by the liberal use of diuretics, belladonna has a beneficial influence, and also in cases of metritis and cystitis. In these diseases belladonna and saw palmetto prescribed together often give flattering results.

The organic diseases in which belladonna is especially valuable are: Croupous pneumonia, catarrhal pneumonia, bronchitis, laryngitis, nephritis, cystitis, mastitis, and metritis. It is also of service in laminitis and enteritis, but no special claims can be made for it in these diseases.

In diseases of the eye or for making examinations of the posterior region of the globe, atropine at once commends itself, and when applied locally or internally it will dilate the pupil more than any other drug, and will in this way prevent the adhesion of the iris to the lens.

Contraindications. Belladonna is strictly contraindicated in active hyperæmia and in the first stages of any inflammatory disease. Because of its antigalactagogue effect it should not be administered to mothers suckling their young, or to milking animals, unless its action is considered more important than the milk-supply. In inflammatory diseases of the brain and spinal cord, even small doses may cause delirium, and hence should be excluded from the therapy of these diseases. It has been prescribed in tetanus, but its value, to say the most, is doubtful.

Administration and Dosology. The doses of fluid extract should be about 15 grammes every twenty-four hours. One gramme dose every two hours, when given over a period of three or four days, is quite sufficient. In single doses the horse will take 8 grammes twice daily, but smaller and repeated doses give better results. Atropine, which should always be given hypodermatically, may be given in 0.06 to 0.12 gramme doses twice daily.

Atropine hypodermatically may be prescribed with strychnine (0.06 grammes of each). If given intertracheally, one-half the dose is sufficient, as atropine seems to increase the action of strychnine. I have noticed repeatedly that when these drugs are given together even small doses will produce alarming symptoms of strychnine-poisoning.

The fluid extract when given for pulmonary diseases may be combined with the fluid extract of nux vomica, and for renal or generative disorders with saw palmetto and sanmetto. In hepatized lungs ammonia muriate is a useful adjunct.

Belladonna is physiologically incompatible with pilocarpine, ammonia acetate, or any diaphoretic of the stimulating variety. On first notice it seems to be incompatible with opium, but this is not the case. Its action upon the respiration is exactly opposite, but otherwise they do not antagonize each other. However, this is of no importance in veterinary practice, as there can be no urgent need of prescribing them together. It might be argued that since one is a centric and the other a peripheric paralyzant that their union might be useful in depressing the whole nervous system in painful afflictions. However true this may be in human practice, experience will soon teach a veterinarian that belladonna in the horse is not noted for its analgesic properties.

In treatment of diseases of the eye, when dilatation of the pupil is desired, atropine in a 1 per cent. solution is dropped into the eye three or four times a day, and after the third or fourth application the result will be attained, and the pupil thus dilated may remain for several days and in isolated cases for a week. On account of this feature homatropine has entirely supplanted atropine when dilatation is desired for ophthalmoscopic examinations. A 1 per cent. solution of homatropine hydrobromate will dilate the pupil in from one to two hours, and the effect will pass off quite as rapidly, thus entirely overcoming the disagreeable feature of prolonged blindness.

URETHRAL CALCULI IN THE DOG.[1]

By Howard B. Felton, B.S., V.M.D.,
PHILADELPHIA, PA.

It is not the purpose of this paper to cover the whole field of urinary calculi in the dog, but simply to speak of the occurrence and method for treatment of those calculi most commonly found, viz., urethral calculi. Calculus of the urinary organs is very common in the dog, and probably many cases go unsuspected because the calculi formed are very small and pass through the natural channels without ever forming an obstruction. The healthy urine of the dog differs from that of vegetable-feeders in the absence of hippuric acid, in its clear consistency, bright yellow color, and strong odor. In subjects affected with calculus it becomes more or less cloudy, and deposits a gritty sediment on standing. In some cases it is red, and contains blood corpuscles; in others it is yellow and thick, as if containing pus, but really contains urine crystals.

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[1] Read before the meeting of the Pennsylvania State Veterinary Association, March 7, 1900.

The calculi found in the urethra of the dog,and we speak here of the male, although they are found at rare intervals in the female, are in most cases small, rounded, or spherical in shape, and varying in size from a mustard-seed to that of a large pea. Occasionally they are triangular shaped, or very irregular in outline, and with a rough, harsh surface which grates under the sound. As a rule, the smooth stones may be said to be formed of carbonates, phosphates, and oxalates of lime and magnesia, and of silica, while the rough, jagged crystalline specimens consist of ammonia-magnesian phosphates. Uric acid is found in the composition of many of these calculi either as free acid or in the form of urates.

In regard to the causes for the formation of calculi we find urea, uric acid, creatin, creatinin, leucin, tyrosin, etc., are all nitrogenous elements formed from the waste of muscular and gelatinous tissues or from albuminoid matters in the food. Urea is the healthy product of such decomposition, while uric and hippuric acids are products in which the oxidation has stopped short, leaving the products in a less soluble condition and more liable to crystallize out. According to Professor Law, impaired breathing, from diseased lungs or otherwise, and imperfect action of the liver, whether from local diseases in that organ or from feverish states with impaired functions generally, are therefore among the causes which strongly predispose to urinary calculi. A certain amount of mucus, fat, coloring matter, and blood enter into the formation of these concretions. Anything which favors the concentration of the urine may be mentioned as an accessory cause. As in the formation of watery vapor in the air it is necessary to have a solid nucleus for it to condense upon, so in the formation of calculi we find the first requisite is that some solid body should exist as a nucleus, around which layer after layer is crystallized, and hence we find these stones are built up in a series of concentric layers. The nucleus may consist of a particle of mucus, fibrin, or blood, a crystal deposited from oversaturated urine, or even a foreign body introduced from without. Professor Law mentions having seen a large calculus in the kidney of a deer, formed around a piece of wood which must have penetrated the kidney and broken off, while the wound by which it entered had healed up. Boerhäve introduced a small stone into the bladder of a dog, and it became the nucleus of a large concretion.

It is very common to find an impaction of a number of small round stones cemented together by mucus into a spherical mass and lodge just above the penial bone. This form of impaction may give the impression of a single large calculus. The impaction may extend up the urethra to the ischio-pubic arch, or in rare cases to the neck of the bladder. The small calculi have a remarkable property of embedding themselves in the walls of the urethra, which makes it very difficult to dislodge them.

We have noticed that this trouble is much more common in the small breed of dogs, and have found it to be most frequent in skye-terriers than in any other breed.

Urethral calculi are supposed by most authors to be formed in the bladder. This is doubtless the source of the larger calculi; but we are inclined to the opinion, formed as the result of several post-mortems, that the smaller calculi have their origin in the ureters or in the uriniferous tubules.

The diagnosis of urethral calculus is comparatively easy. Usually the patient will be brought to you with the statement that he has difficulty in passing his urine. You will notice that the back is more or less arched, the end of the penis usually protruding from the sheath, and if allowed to run around the dog will generally make frequent efforts to urinate, but will only be able to eject a few drops with difficulty and sometimes with great pain, and there will be more or less dropping of the urine from the end of the penis after the effort to expel it has ceased. Examination of the course of the urethra externally will disclose the fact that it is distended above the penial bone. It is only necessary to pass the sound to complete the diagnosis, when the obstruction can be plainly felt, usually immediately above the penial bone. We believe it to be good practice to pass the catheter in any suspected trouble of the urethra or bladder, as we have known practitioners to overlook both urethral calculus and enlarged prostate from a neglect of this precaution. In some cases we all find the obstruction to the flow of urine complete, and these cases must be quickly relieved before uræmic poisoning and mortification set in. Some cases can be relieved by judiciously using a probe of suitable calibre to break up the obstructing mass, when it will be carried away by the flow of urine aided by the expulsive force of the bladder.

A client of ours, Mr. Charles Rees, a watchmaker, has devised a couple of very ingenious instruments for removing these calculi. He is the owner of a skye-terrier that we were obliged to operate on three times for this trouble. From the knowledge we were able to impart, and knowing the nature of the obstruction and its situation, he constructed two instruments. One is fashioned somewhat after a crochet-needle, with all the sharp edges that could wound the urethra filed down; this is designed to pass over the stone with the point and by careful manipulation force it into the cavity below the point, when it may be withdrawn; the handle is formed in the shape of a ring, the termination of which serves to indicate the location of the cavity below the point when it has been introduced into the urethra. The other instrument is designed to crush the stone or cut into its surface, reducing its calibre. Mr. Rees has used these instruments a number of times upon his dog, and has always succeeded in relieving him.

When all other means fail, or the calculus is too large to be removed with instruments introduced into the urethra, resort must be had to the knife. After locating the stone with the sound, cut boldly down upon it, making the incision in the median line of the urethra. Usually it is not necessary to make an incision more than one inch in length. When the stone is located high up in the urethra, and the subject is very small, it will sometimes tax all the patience and the resources of the operator to remove it. It has been our practice to leave the wound open if the incision is small, as there will generally be a number of small calculi passed for a day or two, coming down from above the obstruction, and the open wound facilitates their removal. Urine will be passed through the wound for three or four days, after which it will close and the dog will then urinate in the natural way.

Occasionally a case will be brought to you in an almost moribund condition, where the obstruction has existed so long that uræmic poisoning and commencing mortification of the bladder has set in. Operation under these circumstances we have found will not avail, and should not be attempted.

Preventive treatment—change of diet from animal to vegetable food, demulcent drinks, drinking of alkaline waters—has been recommended, but we have never found any benefit from their use, possibly because our instructions have not been fully carried out.

It would seem that the habit of the system which favors the formation of the calculi, once formed, persists, and remains to trouble the subject during his natural life.

OPHTHALMIA.[1]

By G. Ed. Leech, M.D.C.,
MILWAUKEE, WIS.

When the subject of periodic ophthalmia came up at the last meeting I little thought that I would be called upon to write a paper upon the subject, and when the Secretary wrote me in regard to it I did not have any great desire to take it up; for it is with some such feeling of dissatisfaction that I do it as must fill the mind of a geographer who is about to enter upon the description of a country into the heart of which no traveller has ever yet been able to penetrate; may we be able to set about the description of a disease whose nature and cure even yet remain to be developed.

It would be asserting too much to say that we do not understand more about it than the former practitioners of "horse medicine" did. Science has shed its light upon and much improved our knowledge of diseases of the eye as well as those of other organs, but all art and practice have failed to furnish us with anything in the shape of a remedy by which we are able to arrest this one in its destructive course, or prevent its almost sure return and fatal termination, and, therefore, in point of naked fact, what we have professed to learn concerning periodic ophthalmia has turned out to be of very little practical use to us.

Still it is our duty to record what we do know, to lay down such rules for the guidance of future investigators as our experience has put us in possession of, and with such views as these, rather than with great prospects of proving of much benefit to our suffering patients, must we enter upon the subject of this paper.

This is, indeed, as has been said of some other diseases, "the bane of horseflesh." What can be more annoying to the feelings of the owner of a good horse than to be told that what he took to be simply a cold in the eye, or a weak eye, is likely, nay, almost sure, to prove in the end a case of blindness, and as it is not within the skill of his medical adviser to prevent this fatal termination he had better avail himself of the first opportunity to dispose of him.

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[1] Read before a meeting of the Wisconsin Society of Veterinary Graduates, March 14, 1900

Such advice as this is enough to make him exclaim: "Throw physics to the dogs, I want none of it."

Name. Among the various appellations that have been applied to it we are still using the one given by the French veterinarian who preferred it on account of its relapses, as though it were a fresh disease, after having been absent for a more or less considerable time. Professor Coleman called it specific ophthalmia, the same being applicable to glanders, grease, azoturia, etc. The earlier writers called it moon-blindness or lunatic blindness, claiming that as the moon changed the horse gradually recovered its sight. Some also called the affection "moon-eyes." Mr. Fearon called it gouty ophthalmia; Mr. Spooner, hereditary ophthalmia, and Mr. Croxford asks why it may not be called constitutional ophthalmia, and goes on to say that after all the knowledge we have on the subject this seems to him the one most appropriate to use.

Symptoms. The symptoms, together with the history attached to them, are sufficient to give the practitioner a correct idea of the nature and progress of the disease. One of the most common accounts one gets is that the horse was all right the night before, and that something must have got into the eye during the night; and, indeed, the half-closed aspect only verifies the statement. The upper lid droops on the corner to shut out the light; tears are produced in such quantity that they cannot be carried off by the puncta lachrymalis, and as a consequent result flow over the lower lid and stream down the face; both eyelids, together with the venous vessels in the immediate vicinity of the eyes, are tumid and fuller than ordinarily. What little is visible of the globe of the eye appears dull and sunken, the organ is very intolerant to light, and upon reflecting the lids, causing the ejection of the membrana nictitans, we are given a view of the membrana conjunctiva reddened and inflamed, commonly of the subacute character, and more or less tumid from infiltration. The circumference of the cornea sometimes exhibits a broad nebulous circle, being an extension of that which in the human is called *arcus senilis.*

In the human eye where there is an *arcus senilis* of the cornea a similar opaque ring exists around the margin of the crystalline body. Is this the case in the horse under disease? At the beginning the anterior chamber of the eye commonly preserves its lucidity, so that we distinctly view the iris and pupil through it, the latter much contracted, the former unchanged in color; but in the course of two or three days afterward, and sometimes on the very day of the attack, the chamber becomes obscured by a dingy white or amber colored deposit seen floating within it, through which the pupil is hardly discernible, contracted, as it is to the breadth of a broad line and looking more like the black eye of a garden bean than the ovoid aperture it was before. Supervening upon this we in some cases have obscuration of the cornea taking place, arising from an extension of the conjunctival inflammation over it, and this in very severe cases is so intense that the vessels carrying red blood are perceptible upon its surface, shooting from all sides of the circumference into a sort of circulus vasculosus, from which others proceed after the manner of radii toward a common centre. The obscuration of the cornea, though it may still leave the lymph effused into the chamber of the eye visible, precludes us from distinguishing the pupil and the iris, and it is not until the inflammation has abated that we again regain a view of those parts, and this constitutes the first or inflammatory stage of ophthalmia, which generally lasts from three to ten days or longer, according to the intensity of the inflammation, differing only in different stages. In the third or fourth stage we see through the anterior chamber the iris, murky and darkened, altered in color and lustreless, with the pupil contracted as much as ever, but not evincing that sensitiveness to light which it did in the inflammatory stage.

Within the chamber and gravitating toward the bottom of it are to be discerned flakes or flocculi of whitish or yellowish lymph, effusions as we suppose from the vessels which secrete the aqueous humor. There is no longer the overflow of tears on the face or the conjunctival inflammation, showing clearly that the inflammatory stage is passed, leaving only its consequences behind, and the eye appears to recover from day to day until there is a relapse again. Relapses are looked for as a matter of course, and yet there are cases where there has been but one attack, and that one not of destructive nature.

The changes that the structure of the diseased eye undergoes are with few exceptions the result of the excessive inflammation, and in general require some considerable time for its completion. The first attack, mild in its nature and not of long duration, may leave the eye altered only in such respects as in the course of a long intermission may be rectified. Commonly after the second attack, and occasionally after the first, there will still remain more or less haziness of the cornea, through which we perceive the iris lustreless and murky in its aspect, the pupil contracted and without any of its natural bright blue to be seen. The corpora nigra also appears more pendulous than usual, wanting their jetty blackness, and on occasions exhibiting light specks of opacity, and every subsequent attack will add to these structural changes.

Morbid Anatomy. D'Arbovals, the eminent French veterinarian, says that observation shows an absence of any distinct chambers containing aqueous humor, nothing, in fact, but a single cavity remaining; sometimes the iris appears lacerated, detached from the lens, reduced to a very small volume, its capsule only remaining, perhaps thickened and opaque; at other times the lens is of the natural size, its capsule being opaque with some white spots in its substance and concretions upon its inner surface. The posterior portion of the crystalline lens is thickened and indurated, almost as if it had been boiled, and it reflects a bottle-green color. The fibres of the iris surrounding the lens on some occasions become osseous, and in the place of the vitreous humor resulting from its decomposition we find a viscus orange-colored fluid heavier than water. Instead of the retina there is a fibrous membrane behind the crystalline, the optic nerve is flabby and softened.

Geldings are more liable to suffer from this disease than mares, and by some writers it is supposed that there is some connection between dentition and ophthalmia. The eye most subject to this disease is the very small dark-looking one, which does not disclose any appearance of the white, wall-eyes or watch-eyes seeming to be exempt.

Causes. The causes of periodic ophthalmia demand the greatest attention from us, both on account of the light which they shed upon the nature of the disease and the suggestions they furnish for its prevention. Hereditary influence is one of the causes which some of the profession claim it arises from, and no doubt it can be well sustained, for the records show that in those countries where there is no restriction as to what can be used for breeding they have a larger percentage of the disease; but there is some doubt in my mind as to whether in this case it is the disease that is transmitted or only the predisposition. If this is answered "Yes," how, then, is it that the disease so much confines itself to horses of certain ages and situations? If "No" is the answer, then ask yourself why the production of the disease under certain conditions and states of excitement can be most satisfactorily accounted for? I am still firmly of the opinion that it is predisposition only and not excitant.

We now come to the question whether this disease is constitutional or local, or, in other words, is it due to some microörganism in the blood or is the predisposition inherent in the formation or excitability of the eye? These are most interesting questions of which various facts and observations current among us may be brought forward by investigation. But it matters not whether this is called hereditary or due to an original predisposition, it amounts to one and the same thing, and I will venture to say that this is by far the most frequent cause of the disease; but while I make this assertion I stand ready to admit that it also arises from a variety of other causes, quite adventitious and unconnected with this source. Among these may be mentioned indigestion, miasma, neuritis, dentition, debility from overwork, depletion from blood-letting, high-feeding, too much confinement, and sudden exposure to light. It is also a very noticeable fact that those horses not accustomed to domestication are, generally speaking, free from it, and it is noticed to be more prevalent in poorly-ventilated stables, the same as other constitutional diseases.

To what, then, is ophthalmia to be attributed? The advocate of hereditary influence answers, to the circumstance of the parent having had it, while others will say "No," but to nervous influence, to heat, to plethora, to a contaminated atmosphere. For my own part, however, much heredity or other causes may predispose the animal to take the disease. I cannot help thinking that many horses which now contract ophthalmia in stables would escape in situations in the open air, and that in stables we find the number of cases proportionately less according as the animal at the trying time of life (between four and six years) is moderately fed and worked and kept in an uncontaminated atmosphere. I believe that anything that will excite commotion in the system at this period is liable to affect the eyes, though the eye is not so liable to be affected as the membrane lining the air passages. Most young horses at this time of life, on being stabled, are sure to be afflicted with some catarrhal or bronchitic trouble, as strangles, influenza, swollen limbs, diarrhœa, etc. I cannot, therefore, after viewing these cases from all sides, hesitate in pronouncing this disease constitutional and not local—not a single conjunctival inflammation, although the conjunctiva is a participant in it, but essentially and primarily a disease of the internal structure of the eye. Just how these structures become affected I cannot decidedly affirm, but only venture upon an opinion that the blood is the medium of contamination, which is only one opinion among many others just as deserving.

The treatment for this disease is very unsatisfactory, and I will only say that the operation of tapping the aqueous chamber is recorded as early as 1841, and was the result of an accident—recorded by Dr. Price, of Cork.

(To be continued.)

HORSESHOEING.[1]

By T. J. Kean, V.M.D.,
PHILADELPHIA, PA.

I HAVE been requested to read a paper before this Association on "Horseshoeing." It would be impossible in the time limited, as it must be by your patience, to cover the whole ground embraced in the subject of shoeing horses. I have, therefore, prepared a paper on what I consider the cause of all lameness that may be traced directly or indirectly to the shoeing of the horse's foot—that is, the improper distribution of weight on the hoof through the medium of the shoe.

The horse's foot in a state of nature bears the weight of the body transmitted through the leg on the entire bottom or sole of the foot—that is, the wall, bars, sole, and frog each carry their own particular share of weight, acting together as a unit.

When a foot is shod the weight is carried almost wholly on the wall. This is especially true when shod with heel and toe. With a flat shoe over country roads, where there is more or less bedding at each step, we have some weight carried on the frog, but in cities, paved as they now usually are with asphalt or fire brick or on hard telford or macadamized roads, the frogs hardly touch the road surface, to say nothing of bearing weight; accepting the wall and the outer edge of the sole as the part of the foot on which we must depend to support the weight, making use of the frog we can, when we have a frog well enough developed to be of service, we find that the entire circumference of the foot or hoof is intended to carry the same amount of weight normally. While the attachment of the bones to the wall at the heel may not seem as firm as around the front of the foot, it is to be remembered that the heels are reinforced by the curving-in of the bars, by the plantar cushion, and the lateral cartilages, that while the inside wall may be somewhat thinner, weaker, than that of the outside, it at the same time stands more erect, and receives its weight at a better advantage, and though the inner half of the foot has a slightly smaller area than the outside, it is not to be considered as the base of a column only, but in connection with the movement of the limb and the manner in which the weight is transmitted to it. The inside of the foot is straighter along the quarter, but the two heels are to all intents and purposes alike. When standing the weight is evidently distributed, at speed the weight fixes the force of impact with the ground, is received on the heels, and travels progressively forward, leaving the foot of course as it breaks over the toe, so that for all practical purposes all parts of the foot may be considered as carrying the same amount of weight. This is the normal foot, and it is fully capable of standing all the weight that may be thrown on it in the normal, even manner. It is only when the weight becomes disproportionate, when one part is called upon to carry more weight than the others, that we have trouble arising. The most frequent cause of overloading is unilateral contraction and the manner in which such feet are fitted with shoes. Contraction of one heel may be due to heredity or be acquired, and whether it be of the inside or outside heel we have a corresponding reduction in the size of the base on that side—a fewer number of square inches on which to support the normal weight of the limb. This means a greater proportion of pounds to the square inch. If the proportion is too great we have breaking down of the wall at that point and an aggravation of the trouble. The shoes as usually fitted to these feet tend rather to assist in contracting than in correcting them. The horseshoer fits the foot as he finds it, and not as it should be. Instead of studying the limb in connection with the foot, he never sees anything but the hoof.

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[1] Read before the Pennsylvania State Veterinary Medical Association, March 6, 1900.

Say a foot, for illustration, was intended to be three inches across the heel, that it is one and one-half inches from the heel to the centre cleft of the plantar cushion. Say one heel is contracted until it is one-half inch smaller than the other; instead of being one and one-half inches from the centre line to the heel it is only one inch; it is one-third smaller than it should be; one-third smaller than the other side, but it carries the same weight. On hard roads or asphalt this proportion of weight holds good. On a soft road or track, for instance, the ratio of weight carried on the smaller side increases, because of the smaller base of support on that side; there is a tendency for it to sink into the ground; the other side being wider, covering more ground tends to stay more on the surface. This sinking of the one side rotates the foot in that direction; the disproportion between the two sides becomes very much more marked, so much so that quarter-crack is usually produced in this manner. Quarter-crack is by no means the only trouble or even the most probable cause of lameness you will get from a contracted heel and shoe. I speak of it only to show what may happen in extreme cases, though I have never seen a quarter-crack that happened in a race but what was produced in this manner. A contracted shoe—that is, a shoe where one of the heels of which is turned under the foot—will cause an overloading of the heel otherwise normal. You may find an inflammation of any or all the tissues of the overloaded side; it may manifest itself as a corn on the branch of the sole between the bar and wall, due to bruising the velvety tissue between the bone and the shoe. In these cases we have a state of affairs where the veterinarian and the horseshoer must work together. The veterinarian must supervise the shoeing if he is to meet with success in his treatment. The horseshoer being responsible for the primary condition, can hardly be expected to correct it unaided, nor can the veterinarian hope for permanent results if the horseshoer is permitted to continue the cause. I wish to warn you against the habit some men have of digging or cutting out corns. The veterinarian should impress on the horseshoers he comes in contact with that corns are not the primary cause of lameness; it is simply a symptom, and is to be treated by removing the cause. There can be no good accomplished by digging out a dry corn and burning the velvety tissue with strong acids. If the area is inflamed the whole branch of the sole is to be dressed with the knife, thinned down to allow for swelling of the soft tissue underneath, and prevent pressure and suppuration. If suppuration has already taken place, of course it must be opened and drainage established. The principal in these cases (I am speaking of lameness from overloading without suppuration) is the shoe. How is it fitted and applied? The shoe in most of the cases will be found to be too short. It may, however, be too long, and may have been turned under the foot because the shoer feared it would be pulled off. The shoe should be of generous length and width of web, the bearing surface at the heels horizontal, and be so fitted to the foot that when examined from behind, the foot on the ground, the heels are an equal distance on each side of a line dividing the bones of the fetlock and pasterns into two equal parts, not an equal distance from the cleft of the frog, as the frog may not be proportionate. If one or other heel is wired or turned in the heel of the shoe must occupy the position that the heel of the foot would have had it been normal. The small heel is to be left off of the shoe one-sixteenth to an eighth of an inch, the foot packed, tubbed, or poulticed. There are other conditions arising from overloading of a part of the foot (but I have intruded on your time long enough): the front of the foot too high; a heel or both heels from too much paring; too short a shoe or too long a toe.

POST-MORTEM INSPECTION OF CATTLE.[1]

By James G. Fish, M.D.C.,
CHICAGO, ILL.

Instead of directing your attention to the post-mortem evidence of the presence of disease in cattle, I have concluded that it might benefit some here to be more fully informed as to the methods of conducting post-mortem examination now in use at the Union Stock Yards.

In accordance with the plan I shall briefly outline a day's work in post-mortem.

The killing force is divided so that each man has his own particular part of the work to perform.

There will be one knocker, 3 shacklers, 1 to hang off, 2 headers, 1 sticker, 2 switchmen, 1 man dropping cattle, 1 to place cattle on the floor, 5 leg breakers, 2 foot skinners, 6 floormen to skin bellies, 1 brisket sawer, 1 belly washer, 1 man elevating cattle, 1 man skinning hocks, 2 rumpers, 2 shank scrubbers, 1 shank trimmer, 1 shank wiper, 3 fell beaters, 2 backers, 1 back washer, 2 gutters, 3 tail sawers, 4 splitters, 1 tail puller, 4 hide droppers, 1 neck splitter, 43 men wiping and washing cattle before entering the coolers, 60 men doing all around work—*i. e.*, stripping muscle from head, cleaning casings, etc.

This force will kill 114 cattle per hour.

All cattle before reaching the abattoir undergo an ante-mortem inspection.

When the animal has so far advanced as to reach the gutter, the inspector stands behind or a little to one side of him, and notes the contents of the abdomen, the thoracic cavity, and the state of flesh of the animal.

If everything is normal and the animal is in good flesh he passes on to the next carcass, which is only a few feet away. If the conditions are not satisfactory he immediately places a tag of identification on each side of the carcass and a coupon on the internal organs and head and caul fat. They, with the carcass, are put to one side, in a place provided for the same, for future inspection at his leisure.

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[1] Read before the Chicago Veterinary Society, March 12, 1900.

As these cattle are killed at the rate of 114 per hour, some may think it is impossible to give a fair and just inspection; but as a man who continually uses a knife becomes an artist at his particular branch of work, so does the inspector become an artist. By long practice and seeing so many healthy animals killed, he becomes expert in detecting the slightest deviation from normal.

Some of you would, no doubt, be surprised at the quickness of a butcher to detect the slightest change from normal; still he may not know what the ailment is.

When a carcass is finally passed on and condemned the inspector has it cut up into suitable pieces for tanking, and goes with it to the tank, and places a seal on the top and bottom of the tank. Steam is then turned on for sufficient time to effectually destroy it for food product.

It may be interesting to notice the number of cattle condemned in Chicago during the last six months and the diseases for which they were condemned, so I have prepared the following list that can be depended on as being approximately correct:

	Found in animals examined.	Condemned.
Jaundice	492	1
Uræmia	600	1
Actinomycosis	55,932	115
Metritis	2,432	5
Pneumonia	11,215	23
Bruised carcasses	25,085	52
Leukæmia	400	1
Pleurisy	6,955	13
Dead in pens	4,651	8
Malignant tumors.	1,034	2
Enteritis	3,126	6
Bruised parts	9,116	0
Peritonitis	17,283	32
Emaciation	24,647	63
Peritoneal abscesses	1,322	3
Gangrene	1,790	3
Hæmatodes	9,690	21
Cancer	4,246	11
Pyæmia	2,785	5
Septicæmia	1,768	3
Ascites	1,267	2
Pulmonary abscess	1,075	2
Nephritis	400	1
Tuberculosis	331,887	668

Making 1041 condemnations for the six months ending December 31, 1899, of which 64.17 per cent. were tuberculous.

Rather than describe any particular disease or the post-mortem evidence of it, I have depended on the discussion to develop the points of greatest interest, and will now pass on to consider a condition not infrequently encountered in cattle, and the cause of much trouble to the inspector.

I refer to *emaciation*, which Gould defines as "loss of the fat and fulness of the flesh of the body." My own idea of emaciation is that it is characterized by extreme poverty of the animal, simple atrophy, in which the fat disappears from the subcutaneous adipose tissue, a diminution takes place in the size of the tissue elements, and the replacement of the once healthy tissue by drops or molecules of an oily nature. When much tissue is affected the change can be readily distinguished with the naked eye by the yellowish-white appearance of the carcass and by a diminution in consistency and elasticity. The largest percentage of emaciated cattle is found in cows formerly used for dairy purposes, that have probably had their milking capacity forced for four or five years. At the end of this period the flow of milk diminishes, and soon the beast is turned out to grass or put on a less nutritious diet, and although allowed to go dry she seems to have lost the power of assimilating food for flesh or fat producing purposes. She becomes thinner each day, and at last is shipped for slaughter where it is sure to bring some sort of a price. The dairyman or any of his neighbors would not be guilty of killing any such animal for food for themselves or families. But he sends it where he thinks it will be overlooked in the great number that daily arrive at the various large markets. I have found it one of my most difficult tasks to condemn a cow for emaciation when there are no other symptoms of disease. The shipper or packer is rare who will gracefully acquiesce in condemnation for such a cause. The question is thus continually forced upon the inspector, What is the degree of emaciation that renders cattle unfit for human food? Anything that will enable him to answer this question to his own and the public's satisfaction he will welcome as a boon, and the discussion that will to any extent develop this point will be of benefit not only to our Society, but to the whole population of this country whose servants we are.

Vineland, N. J., following the lead of Bridgeton, is now considering the necessity of establishing a meat-inspection and milk-inspection service. The prevalence of tuberculosis has aroused the people of these towns to the need of better safeguards.

THE BUREAU OF ANIMAL INDUSTRY.

By Edgar W. Powell,
STUDENT, UNIVERSITY OF PENNSYLVANIA, VETERINARY DEPARTMENT.

Perhaps it will be interesting as well as instructive for us to know something about the work done by this important division of the Department of Agriculture. Dr. D. E. Salmon is chief of the bureau. The Bureau of Animal Industry is divided up into several divisions, and covers a great many different kinds of work. Under the inspection division we have meat-inspection, inspection of vessels and export animals, Southern cattle inspection, prevention of scabies in sheep, inspection of export animals and dairy products, etc.

Then we have the pathological division, under which comes the black-leg investigation, Texas fever, glanders, rabies, infectious leukæmia in fowls, and other diseases of fowls. Under this head comes a good deal of miscellaneous work in the way of examining and determining specimens sent from all parts of the country and covering nearly all the pathological conditions to which our animals fall heir. Each of these specimens requires much laboratory work, sometimes a week being devoted to a single specimen. In each case a careful record is made and a complete answer sent to the sender.

Bacterial cultures are made also.

Under the biochemic division comes the preparation of tuberculin, mallein, serum for hog-cholera and swine-plague, as well as ink for stamping meat, etc.

To return to the branch or division of inspection. During the last year the inspection of cattle, sheep, calves, and swine was carried on at 138 abattoirs and packing houses in forty-one cities. In twelve of these cities the ante-mortem inspection was made in the stock-yards. The inspection of horses was conducted at one abattoir only. Many of the animals are rejected at the stock yards on account of pregnancy. These animals are allowed to be shipped out when desired for feeding or dairy purposes.

The total number of ante-mortem inspections in the year closing June, 1899, was 53,223,176. The number rejected upon this examination was 156,539. The growth of this feature of the work is shown by the fact that in 1892 the total number of inspections was only 3,889,459.

The total number of post-mortem inspections in the last year was 34,163,155. The cost of this inspection was $465,709.23. Of over two million hogs inspected microscopically only 1.87 per cent. contained living trichinæ. The cost of this work was 8.9 cents for each carcass examined.

All this work was done to prevent the spread of disease among the animals of the United States; to protect the consumer from diseased meat; to secure the admission and transmission of our animal products to foreign markets in good condition, and to maintain the reputation of the products at home and abroad.

It is reported that the annual loss of cattle from the disease known as black leg or symptomatic anthrax in the districts principally affected has ranged from 5 to 35 per cent. The Bureau of Animal Industry has for some time distributed a vaccine for the prevention of this disease, and this it is estimated has reduced the loss to 0.54 per cent. among the animals treated. During the last year 545,289 doses were distributed. The indications are that the contagion gradually dies out where systematic inoculations are carried out, and it was with the hope of eradicating the disease from many sections that the preparation of the vaccine was undertaken.

Texas Fever Investigations. The experiments of the Bureau demonstrated that Northern cattle might be made immune from Texas fever by inoculating them with the blood of immune animals. This has recently been adopted and practised with most satisfactory results by some of the experiment stations. The practical application of this discovery is of great importance both to the breeder of improved stock in the more Northern States and to the cattle raisers of the infected districts, as it permits of the improvement of Southern herds without the discouraging losses that have heretofore always occurred.

Experiments have been continued with a view of obtaining a mixture in which the cattle from the Texas fever districts may be dipped for the destruction of the ticks, and which at the same time will not injure the cattle. The effort has not been entirely successful, but the progress of the work leads to the hope that such a mixture may be produced. The difficulty of finding such a mixture is plain to those who know how tenacious of life is the tick, which is the carrier of the disease.

Investigations in Porto Rico show that the cattle-tick is prevalent there, but the ticks which were brought from there and placed upon cattle in the United States failed to produce Texas fever. Whether this result was accidental, or whether these ticks are without infectious properties, is of great importance. If further investigations show that the Porto Rican tick is free from the pyrosoma, the true contagion of the disease, and that the cattle of Porto Rica are susceptible, the introduction of a single animal bearing the pyrosoma might convert these comparatively harmless parasites into the most deadly scourge of the bovine race. This subject will be further experimented upon in the present year.

Hog-cholera. The preparation of serum for treating hog-cholera and swine-plague has been on a much larger scale than last year. The diseased herds in four counties in Iowa have been under treatment, the result showing a saving of 75 to 80 per cent. of the animals injected. It is evident that this mode of treatment is far in advance of anything tried heretofore.

Sheep-scab. For many years the scab has been prevalent among flocks, especially of the Western States and Territories, and sheep have been shipped from one State to another in violation of the law until the stock yards and cars have been almost continually infected. The result of this is that sheep could not be bought from any market without danger of bringing to the farm the contagion. It is one of the greatest evils the sheep industry has to contend with, not only damaging and often destroying the fleece, but so reduces the strength and condition of the animals that they often die or succumb to some other influence. The first step taken by the Department was to issue a pamphlet notifying transportation companies and shippers of the existence of the contagion, and pointing out the prohibition of shipment and the penalties provided by law. Subsequent to this an order was issued that diseased sheep discovered by inspectors in the channels of interstate commerce should be detained and dipped before going to their destination; also sheep purchased in infected yards for feeding should be dipped before they were allowed to go to the farms. It was found that some of the dips used by the stock yards were not efficacious, and that others were so severe or poisonous as to be dangerous. An order has consequently been issued specifying the kinds of dips to be used and the manner in which these should be prepared and applied. The effect of this has been satisfactory, and the number of diseased flocks received at the principal stock yards has been greatly diminished.

Glanders. Mallein is furnished only to local authorities for official use. There has been enough sent out in the year to test 5200 animals. Four cases of glanders were reported in the District of Columbia.

Dairy inspection or the inspection of dairy products is a very important part of the work of the Department, but I will not discuss it here.

The Department in May last sent the chief of the biochemic division to Berlin to attend the International Tuberculosis Congress, and over two hundred prominent men were at this congress as delegates from twenty-five nations. Papers by Virchow and Bollinger and others emphasized the dangers of meat and milk from tuberculous animals. It was the fortune of the chief of the biochemic division to meet at that congress, and afterward in visiting the chief and most important antitoxic serum laboratories and stations in Europe, the most important workers in biochemic lines. He found the scientific work of the Bureau of Animal Industry to be held in high regard by investigators in similar lines in the different European States. It is a great advantage to have the employés of the Bureau meet personally the scientific investigators in similar lines, thus affording an opportunity of exchange of ideas and the planning of coöperative work.

Experiments are in progress by the Department to produce an antitoxic serum for the prevention and treatment of tuberculosis.

SELECTIONS.

Losses of Farm Animals. The estimated percentage of mortality among farm animals during the year ending March 31, 1900, is not only below that of the year preceding, but is also below the ten and fifteen-year averages. This percentage is based upon the estimated number of farm animals on the first day of January last, and as such estimated number will be brought into conformity with those reported by the census as the result of its approaching farm-to-farm visitation, no elaborate analysis of the figures herewith presented will be made, the more important changes alone being commented upon.

Horses. Losses: Of the ten States each estimated to contain 500,000 horses or upward, all except Missouri report losses from disease somewhat less than those of the preceding year. The year 1898–1899, however, was characterized by a rate of mortality slightly higher than that of any previous year for which figures are available, and accordingly a comparison of the year now under discussion with the ten-year average is less satisfactory. Ohio, Indiana, Iowa, Kansas, Nebraska, and Texas report a rate of mortality below their respective ten-year averages; in the case of Pennsylvania and Missouri the percentages of loss agree exactly with the ten-year averages, while in New York and Illinois they are slightly above such averages.

Condition: The condition of healthfulness and flesh on April 1 was very high, being only 3 per cent. below the normal, as compared with 5.6 per cent. below the normal on April 1 of the preceding year. The condition by States will be found in the table on page 4, but attention should be called to the high averages reported from Pennsylvania, Illinois, Iowa, and Kansas, which were 98, 99, 100, and 99, respectively.

Cattle. Losses from exposure: The estimated percentage of loss from winter exposure is 1.37, against 2.2 the preceding year and a ten-year average of 1.6. This reduced mortality, as compared with the preceding year, represents a saving of nearly 400,000 cattle under this one head alone. As will be seen from the table on page 4, the highest percentages of loss are reported from the South and Southwest, where less attention is paid both to food and shelter than in the regions where more severe winter weather is expected and prepared for.

Losses from disease: The estimated percentage of loss from disease is 1.99, against 2.03 the preceding year and a ten-year average of 1.8. The figures by States, which will be found in the table on page 4, call for no special comment.

Condition: The average condition for the country at large is only 2.8 per cent. below that of normal healthfulness and flesh, as compared with 7.5 per cent. below at the corresponding date last year. The figures by States will be found on page 3, but attention may be called to the high averages, ranging from 99 to 110, from four of the New England States, from Illinois, Iowa, Kansas, Nebraska, North Dakota, Wyoming, Utah, Idaho, and the Pacific States.

Sheep. Losses from exposure: The estimated percentage of loss from winter exposure is 1.8, against 3.5 the preceding year and a ten-year average of 2.6. As in the case of cattle, and for the same reason, the greatest losses, relatively to the total number of sheep owned, are reported from the Southern States.

Losses from disease: The estimated percentage of loss from disease is 2, against 2.1 the preceding year and a ten-year average of 2.3. The figures by States will be found in the table on page 4, and call for no special comment.

Condition: The average condition is only 0.1 per cent. below that of normal healthfulness and average flesh, as compared with 7.6 per cent. below on April 1, 1899. This is an exceptionally high average, due mainly to the presence of a condition ranging from normal to 10 per cent. above in a few of the leading sheep States and to the entire absence of any specially low condition in any part of the country.

Swine. Losses from disease: No estimate of the number of swine on January 1 last having been made by the Department, the rate of mortality for the country at large cannot be determined. Of the seventeen principal States, however, twelve report a mortality below that of last year. In Texas the rate is unchanged, and only in North Carolina, Georgia, Alabama, and Arkansas is it even slightly higher than in 1898-1899. Only in five States, containing an aggregate of less than 1,000,000 head of swine, is the mortality reported above the ten-year average. The greatest losses were in the Southern States, Arkansas reporting a loss of 122 per thousand; Florida 118 per thousand, and Louisiana 101 per thousand, with a range of 39 to 94 per thousand in other parts of the South.—*United States Department of Agriculture, Division of Statistics, Crop Circular for April,* 1900.

EPICARIN. C_6H_3:COOH:OH.$CH_2C_{10}H_6$OH is a condensation-product of creosotinic acid and beta-naphtol. In the ordinary form in which it is found in the market it forms a reddish-yellow, strongly acid powder, melting at 199° C., and readily soluble in alcohol and in ether. It forms easily soluble, neutral salts. According to Frick and Muller (E. Merck's *Bericht,* 1900), epicarin is but very slightly toxic, and is a good remedy for scabies in dogs, as it quickly checks the itching, and rapidly removes the affection when contracted by a human being. Though epicarin does not possess the power to kill the acarus to the same degree as does carbolic acid, creosote, tar, lysol, creolin, and iodine, its application is said to be far pleasanter. In oleaginous suspensions, or mixed with green soap, epicarin is too weak for the treatment of scabies on household animals; it should be applied in alcoholic or ethero-alcoholic solution. A solution which is recommended is the following:

Epicarin	10 grammes.
Castor oil	10 "
Alcohol	100 "

This should be applied to the skin by means of a brush lightly drawn through the hairy coat. It is reported that these applications, should they even be licked off by the dog, are entirely free from any disadvantages, and, made every other day, rapidly effect a cure. Professor Kaposi states (*Ibid.*) that epicarin is also effective in cutaneous diseases in human beings, and that its action, resembling that of beta-naphtol, perhaps renders it of special benefit in the treatment of children. He recommends the epicarin to be used in the form of a 10 per cent. ointment with any suitable base, or in solution with alcohol and glycerin.—*Merck's Report.*

NOTES.

Bridgeton, N. J., has become seriously alarmed at the prevalence of tuberculosis and her high death-rate, and will establish at once a milk-inspection system.

The Iowa Legislature has a bill before that body providing for a lien on foals for the stallion fee.

The purchase of many of our fast trotters and pacers, our young stallions and brood mares of note, continues to a greater degree, an evidence of the progress of the United States in developing the horse of speed.

The *Rider and Driver* now carries a column for its veterinary subscribers, placing the name, address, and telephone number in this directory.

A Missouri law requiring a tuberculin test of all cattle entering the State for breeding purposes went into effect January 1, 1900.

The advocates of the Holstein-Friesian breed of cattle are daily growing more confident of the value of these animals for dairy purposes, with many advantages to their credit over the generally selected Channel Island cattle. The reckless breeding of the Jerseys, decreasing them in vigor and size, was a result somewhat disastrous to this breed,whereas those having the Holstein-Friesian at heart have continued to blend their higher grade ones and maintained size and weight, and, while maintaining their value as prolific milkers, they have not lost sight of increasing the quality of the milk and making them better butter producers. When no longer valuable for the dairy they can be profitably turned to beef, a point not attained by the Jersey.

REPORTS OF CASES.

ILIO-RECTAL FISTULA.

By S. H. Swain, V.S.,
DECATUR, ILL.

The subject of this article was a splendid specimen of the equine family, a bay colt, aged about six months, sex male, owned by James Dickey, of Voorhies, Ill.

The history of this case showed that while the mother was being driven on the road, in shafts, the colt suddenly stopped in front of the mare, and by so doing had received an injury from the point of the shaft in the region of the anus, and that considerable tumefaction followed in the right sacral region, with a discharge of pus from the rectum and later by atrophy of the sacral muscles. A local doctor was consulted, who attempted treatment by injections per rectum and blisters over the tumefaction in the sacral region. After an unsuccessful attempt, lasting for a period of about two months, the colt was sent to me for treatment, and on making a rectal exploration a fistula was discovered extending in the direction of the inferior sacro-iliac region, with communication in the rectum, about four inches anterior to the anal opening.

On this discovery an operation was decided upon ; an incision was then made in the depression between the anus and point of ischium on the right side of the anus and exterior to the sphincter ani. Then the left hand was introduced into the rectum and a probe passed into the fistulous opening sinus ; then a blunt instrument in the right hand was introduced into the incision above mentioned, and pushed forward parallel with the rectum until an intersection was made with the fistulous sinus containing the probe ; an external drain was thus successfully made without serious injury to the patient.

Treatment was now begun, and consisted of daily injections into the fistulous tract of hydrogen peroxide until one pound had been used, then the peroxide was discontinued, and the following preparation was substituted : Zinc chloride, 2 drachms ; tr. myrrh, 4 ounces ; distilled water, 60 ounces. This was mixed and injected once or twice daily by means of a small syringe with a long slender point. This treatment was continued from day to day, with a gradual slow improvement, it becoming necessary to frequently dilate the external drain for several inches in depth in order to secure healing from the bottom, with the result that after a continuous, patient treatment of this case for a period of nearly three months the patient was discharged from our hospital completely cured and without a blemish.

CASE II. was a fine grade Percheron mare, about ten years old, and weighed about thirteen hundred pounds, owned by George Short, of Emery, Ill., and came under my observation some twenty years ago.

The history, as given by the owner, showed that the mare had difficulty in defecation for quite a while prior to my visit, and also had shown colicky symptoms and had been raked per rectum by the owner without discovering the true nature of the trouble, and with only temporary relief ; then the owner decided to call me in consultation.

On my arrival and after learning the history of the case a rectal examination was made, and the entire pelvic outlet was found to be completely blocked with feces, a removal of which revealed an enormous pocket occupying the entire ilio-rectal space and containing, I think, not less than one peck of closely compressed fecal matter. This was removed and the pocket carefully examined for our own information, and then an unfavorable prognosis was pronounced, and the owner was advised to destroy the mare, which was done at the next occurrence of the impaction.

It is the opinion of the writer that this case was at one time very similar to the one described in the colt, and could without doubt have been treated with complete success if taken in time. On account of the unusual occurrence of this accident and a lack of literature on the subject, I have thought a report of these two cases would be of interest to the profession.

A CASE OF ANEURISM IN A CHICKEN.[1]

By JOSEPH SAILER, M.D.,

AND

MAZYCK P. RAVENEL, M.D.

(From the Pathological Laboratory of the University of Pennsylvania and the Laboratory of the State Live-stock Sanitary Board of Pennsylvania.)

THE specimen presented illustrates an extremely rare condition, this being, as far as we have been able to discover, the first and only case recorded. The bird from which this was taken was sent to Dr. Leonard Pearson, State Veterinarian, for examination, the owner fearing that the condition might be contagious and affect others of his flock. We can give no history of the cause or progress of the lesions, as they were discovered by the owner only after the bird had leen killed.

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[1] Read before the Pathological Society of Philadelphia.

On the left side of the body the skin is dissected up by a large blood clot which overlies the pectoral muscles and coincides closely in size with their area. The skin has ruptured over the lower part, leaving the clot exposed. On the left wing a tumor is seen occupying the outer side of the humerus for the greater part of its length, and showing near the centre an opening in the skin about a half-inch in diameter. On dissection a clot on the breast was found to be continuous with that on the wing, both apparently having resulted from a dilatation, with subsequent rupture of the main artery of the wing about the junction of the subclavian with the axillary.

Sections were cut from three portions—from the middle of the large clot lying along the wing; from the proximal end of this clot, and from the subclavian artery. In the clot itself the interesting features were an enormous number of nuclei, the nuclei of the red blood cells ; a very small quantity of fibrin, and a considerable amount of hyaline tissue. The clot was distinctly laminated, and there was some slight evidence in one part of reorganization. The sections were stained by hæmatoxylin and eosin, van Gieson's method, Weigert's fibrin method, and the elastica method. The wall of the artery showed very marked inflammatory change—infiltration with round cells. It was considerably dilated, and rupture had taken place, the blood pouring into the surrounding tissues, pushing under the muscle, which lay close to the artery and forming a false aneurism in this situation. The muscle cells where the blood infringed on them showed extensive alterations. The striations were indistinct, and there was considerable cell infiltration into the intermuscular connective tissue, evidently of some standing. Weigert's fibrin method showed essentially the same changes found in the blood clot, with the addition that a few microörganisms of various types were found in the tissues, evidently a post-mortem invasion. The elastica method failed to reveal any hyperplasia of the elastic tissue in the wall of the artery. The case presents, therefore, some form of degenerative arteritis, possibly secondary to traumatism, with softening of the wall of the artery, its dilatation and subsequent rupture. The large masses of blood over the pectoral region and extending into the wing were hæmatomata and not actual false aneurisms.

THERAPEUTICAL AND PHARMACEUTICAL NOTES.

UNDER THE DIRECTION OF W. J. MARTIN, M.D.C.,
KANKAKEE, ILL.

SUTURE-WOUNDS OF THE HEART. Elsburg (*Journal of Experimental Medicine,* vol. iv., Nos. 5 and 6), as a result of a historical and experimental study, states that suture-wound of the heart, as a final result, is an operation worthy of consideration in some cases and often justifiable; that this procedure in animals and also in man is devoid of the danger of a sudden arrest of motion due to manipulation, unless Kronecker's coördination centre be injured. The suture should be an interrupted one of silk, applied in most cases so that the epicardium and superficial layer of the myocardium are the only ones penetrated, and tied when possible during diastole. The laboratory experiments on which these conclusions are based are given in detail.—*Therapeutic Gazette.*

THE IMMEDIATE HERMETIC SEALING OF WOUNDS. Marcy (*Columbus Medical Journal,* December 5, 1899), after a preliminary discussion of this subject, states that the object of the surgeon should be to maintain a wound aseptic. Like structures should be coaptated and held at rest by buried aseptic, absorbable sutures, and the technique is completed by the application of a dressing to prevent subsequent infection. This is secured so simply and easily by iodoform collodion, strengthened by a few fibres of cotton, that this dressing reaches an ideal completion. It is fluid-proof, in that no exudate can escape from beneath it, and as a consequence it is germ-proof, in that by no means is it possible that any foreign material can enter the wound. Beyond this it holds in even coaptation and at rest with a certain fixity of support the approximated parts. Iodoform is soluble in it, and under certain conditions it is inhibitory to the development of micrococcus albus in the proliferating epithelium, and for this purpose is quite as valuable as the silver salts, which are much more difficult of application. To one who may doubt the effect of a potent agent seemingly locked up in a collodion film, we need only to cite the powerful desiccating effect of cantharidal collodion. A wound made and maintained aseptic in well-vitalized structures, held at rest by buried tendon sutures and sealed with iodoform collodion, will not suppurate, and will be followed by a non-inflammatory primary union.

The fear, the anxiety, the constant supervision and watchfulness of the wound by nurse and attendant are entirely abrogated; subsequent dressing is of no avail except to keep the parts from extraneous injury. The work of the surgeon for good or ill has its finality at the period of manipulative intervention.—*Ibid.*

POTASSIUM CHLORATE FOR BURNS. The immediate application of a cold saturated solution of potassium chlorate has an excellent effect on burns, relieving the pain rapidly. Superficial burns may be permanently dressed with a solution of the salt, but deeper wounds should be treated with full antiseptic precaution.—*Semaine Med.*

QUININE AND THE MALARIAL PARASITE. Lomonaco and Panichi (*Centralblatt für die medicinischen Wissenschaften,* August 19, 1899, No. 33) have studied with direct microscopical observation the effects of quinine on the blood of malarial patients (quartan type) who had not been treated with quinine. In the case of the early form of the parasite, when a drop of an isotonic (0.9 NaCl) and at the same time isoviscous (2 per cent. gum) solution was passed under the cover slip, the red corpuscles at once became mobile, collided with one another, and became altered in shape. One corpuscle, which moved least, and therefore retained its shape best, was especially studied. The intracorpuscular parasite displayed active amœboid movements, throwing out pseudopodia, and becoming more slender. This lasted only for a few seconds, when the parasite assumed an elliptical shape, with its pigment granules arranged peripherally. This resting stage did not continue long, for movements soon became apparent, and could still be made out some hours later. If, however, instead of the aforesaid solution, a drop of watery quinine solution (1 in 1500) was added, contraction of the parasite occurred, accompanied by tremulous movements of the pseudopodia, with central arrangements of the pigment granules. At the end of a quarter of an hour the parasite recovered its shape and movements (pseudopodia), the pigment becoming arranged peripherally. In the slightly more developed phase, when about two-fifths of the red corpusles are occupied by the parasite, quinine gave rise to the following phenomena: The parasite contracted, drew in its pseudopodia, and became more or less spherical. The granules, situated chiefly at the periphery, took on active movements. Gradually the parasite became quite spherical, and all the pigment granules peripheral. Once more did the latter take on active movements, the parasite appeared more refractile, and gradually worked its way out of the corpuscle, to the margin of which it remained attached. This phenomenon is independent of the currents in the fluid; indeed, it may occur in a direction contrary to these. When the currents were marked the red corpuscle was carried along with the parasite glued to it. Later the corpuscle lost its red color, becoming ghost-like; and the parasite, now free and retaining its shape, exhibited active movements of its peripherally placed granules. The decolorization of the normal red corpuscles did not occur when a few drops of a 9 per cent. salt solution was added to the quinine solution, but the parasite-containing corpuscle did. In isotonic and isoviscous salt solution, with or without quinine, the parasites in a late stage of development exhibited active movements, but never worked their way out of the corpuscles.

Marchiafava and Celli (*Archiv per la Scienze Medica*, vol. x., p. 193) have noted, without laying much stress upon the point, that after the exhibition of quinine most of the parasites were motionless, and a few were observed in the act of leaving the corpuscle. Lomonaco and Panichi conclude from further experiments that the diapedesis of the parasite depends upon the latter's vitality; that it is an active phenomenon. As the red blood-corpuscle is necessary for the life of the parasite, the action of quinine can be very simply explained, namely, quinine, by driving the parasite out of its element, places it under conditions unfavorable and destructive to its development. A practical point as to treatment, therefore, follows, namely, that quinine should not be given in the febrile stage of the disease, but during the non-febrile intervals, when the early forms of the parasites are present in the blood in the greatest number.—*British Medical Journal*, October 21, 1899.

CAMPHOROXOL. A disinfectant vulnerary, composed of 38 parts of alcohol and 68 parts of a 1 per cent. solution of camphor in a 3 per cent. solution of hydrogen dioxide.

VANADIUM AS A MEDICINE.

By JOHN L. BRADLEY, V.S.,

MERCERSBURG, PA.

Vanadium has been known chiefly to chemists, since its discovery early in this century, as a rare elementary substance, although it occurs quite widely, notably in Mexican lead, in some iron ores, in anthracite coal, and in the furnace slag of certain reducing processes, whence it is now generally obtained. Between 1880 and 1886 Messrs. Witz and Osmond investigated the chemical properties of this substance very thoroughly. These are curious enough to merit notice particularly from the veterinary profession. Dr. Laran, of Paris, who describes his researches in an article in *La Science Francaise*, March 2, says: "Witz and Osmond were the first to show that vanadium, or rather its compounds for vanadium, has not yet been obtained in perfect purity, placed in the presence of an oxidizing body and an organic substance capable of oxidation, has the property of serving as a carrier of oxygen from the former to the latter, and that its office ceases only with the complete reduction of the oxidizing substance."

It has been asked whether this property of vanadium may not be used to oxidize the hæmoglobin of the blood. Dr. Laran's investigations along this line have shown, so he tells us, that vanadic acid is the only compound of vanadium that will answer this purpose, and he has succeeded in obtaining it in a chemically pure and standard form, something that had not been accomplished hitherto.

Having established by experiments on animals the fact that the acid in small doses has no injurious effects, but will benefit those diseases that need oxidation of the blood, such as anæmia, tuberculosis, and all maladies dependent on defective nutrition, should, it seems, be relieved by this treatment. Without detailing the various theories of these diseases, it will suffice to note that iron enters into the composition of the hæmoglobin of the blood, and does the duty of taking up the oxygen of the air we breathe and fixing it in the cells of the organism, and that the only cures of tuberculosis that have been effected have been brought about by causing the patients to breathe, in high altitudes, air surcharged with oxygen while giving to them continually an excess of nutrition. "Vanadic acid plays the same rôle as iron, but in a greater degree; it increases the appetite considerably, and by this means makes over-feeding easy and perfectly natural," not only in such cases as anæmia and tuberculosis has the vanadic acid treatment proved a practical success, Dr. Laran writes, and he leaves little doubt that he has discovered a useful addition to the materia medica.

DURING the year 1898 there were 1380 head of horses attacked with glanders in Great Britain.

EDITORIALS.

A SERIOUS CHARGE.

On another page of this issue will be found a statement of the arrest of one of Philadelphia's milk inspectors on a very serious charge, that of extorting money from a milk producer to suppress legal proceedings for the alleged violation. The field of all inspections is at all times one of great responsibility and temptation. The use of bribes, gifts, the granting of favors and many perquisites are ever at the taking or command of those in official place, and one must be strong, indeed, not to in some way find himself obligated to forget duty at times or to play the lenient rôle toward some violator of the law. It is the first charge openly made, and the record of this official has been a clear one, and judgment as to his guilt should be suspended until a trial by jury. The desire at times to trap earnest, vigilant officials by unscrupulous dealers is well known, and we are hopeful that this may prove true in this case.

At all events, we sincerely trust that this case will be pushed to prompt determination, and whoever may be the guilty parties be meted out the severe punishment such actions deserve.

In these days of bribery and extortion in high and low public places, it makes one shudder at times at the thought of the failure of popular government, national, State, and municipal. Punishment of a severe character is too rarely meted out, and the freedom given to those who violate the oath of public office is a danger and a menace to successful government that must soon be stamped out.

THE HOUR OF OUR GREATEST NEED.

The signal victory won in the Senate last week in carrying through our army bill giving rank and a just power to the veterinarian was a true evidence of how far public opinion may be roused in the support of a meritorious measure. There were no party lines drawn on this appeal, but that which was best for our country, our army, our soldiers, won in this final battle in the upper house.

But this great victory in the Senate must be followed by a greater effort in the House of Representatives. Every day means one of earnest work. Every member of the House must be seen and appealed to. Every friend of the measure must give his support now. Every school, association, and organization of veterinarians must command an unalterable support. See at once your Congressman with others, and have every member of the lower branch of our national legislative body urged to support this measure, and the long, earnest battle of ten years will be won triumphantly, and the entire country will rejoice with us in this added measure of security.

ANOTHER BUREAU LOSS.

The loss of Dr. Charles F. Dawson to the Bureau of Animal Industry is another one of those misfortunes which the Government is continually experiencing, owing to the small salaries accorded to expert skill and ability. Many of the scientific departments have long ago become the training schools for expert scientists eagerly sought for by commercial enterprises throughout the land. This should not be, as the years of special training in Government work, fitting men peculiarly for the most valuable work for our Government (our people), are thus lost to private enterprises by virtue of the meagre compensation given. While there are hundreds of overpaid workers in the Government employ, the compensation of many of the heads of scientific departments are very much underpaid, and those in authority should not be unmindful of the need in this direction, and why this should no longer be. The vast amount of scientific work done for our people and the valued assistance thus given should be enhanced and advanced, and this special work properly compensated for. More than 60 per cent. of the personnel of this department have been lost during the past ten years in this way.

MARRIAGE.

W. H. Derr, V.S., graduate of Ontario Veterinary College, 1893, to Miss Elizabeth Tulloss, both of Mansfield, Ohio. The recently married couple are at home to their friends on E. Fourth Street after April 1.

A. V. M. A.

ARMY LEGISLATIVE COMMITTEE APPEAL.

BRIEF OF FACTS IN SUPPORT OF SENATOR KENNEY'S AMENDMENT TO THE ARMY APPROPRIATION BILL.[1]

Senator Kenney's amendment to the army appropriation bill provides for the establishment of an organized veterinary service, with reputable officers, whose education and competency are insured by rigid examination; to replace the present system of employment of an unorganized class of individual civilians, with no rank, no future, no responsibility, and no official position.

The United States Army is absolutely deficient in a proper veterinary service, which exists in the army of every other civilized country in the world. The present system in the United States Army has less method in it than that found needful in any large contractor's stable or stock farm in the country.

Economy. The entire cost under the amendment is only six thousand five hundred dollars over the present cost of civilian employés under the present system, and will be more than compensated for by the economy resulting from an organized veterinary corps.

Efficiency. The establishment of an organized Veterinary Service:

To give proper instruction in hippopathology, inspection of forage, stable hygiene, and farriery, to officers, cadets, non-commissioned officers and farriers, at our military schools and large posts.

To furnish expert veterinarians for service as a member on boards of purchase of remounts.

To furnish qualified Inspectors of live stock and dressed meat for our soldiers' rations (there is not a qualified meat-inspection service in the U. S. Army).

Is needed, both on the ground of economy, for the efficiency of the Army, and for the health of our soldiers.

The letters, copies of which have been furnished, from Major-General Merritt, Major-General Brooke, Major-General Wilson, and numerous others of the higher officers of the Army, indorse such an organization.

The establishment of such an organization has had the approval of President William McKinley.

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[1] Calendar No. 968, H. R. 8582.

The General commanding the Army, Major-General Miles, and the Quartermaster-General, Brig.-General Ludington, strongly approve and favor the amendment.

The personal consideration of the merits of this amendment and the individual vote of each Senator are respectfully requested.

RUSH S. HUIDEKOPER,
Secretary.

WASHINGTON, April 25, 1900.

COMMUNICATION.

MEAT-INSPECTION.

EDITOR OF THE JOURNAL OF COMPARATIVE MEDICINE:

I HAVE read with considerable consternation of the proposed legislation in Germany respecting the importation of meat from this country, and could hardly account for the stand taken. I have, however, just been reading the paper on "Municipal Meat-inspection," as reported in the proceedings held some time back in New York, and therein, to my mind, is contained plenty of grounds for forming a poor opinion of our system of inspection, and thus affording an opportunity to take a stand against our meat products by those interested in so doing. The paper gives considerable evidence as to establishing the fact that our system is a long way from being what it should be, and when these facts are published so that they can be had by most anybody, particularly those who are interested in finding fault, is it any wonder that other countries should take a stand in the interest of their own country against our meat, and thus criticise our system of inspection. I trust the Association will take hold of this matter and bring about, in some way, a better condition of affairs, as it is one of the most important subjects touching our profession in relation to its public health service.

I feel the JOURNAL can help notoriety in the matter by setting a foundation of ideas of what is needed, and how it can be brought about. This paper openly acknowledges a condition of affairs that certainly is not pleasant for home consumers, and when we are not over-particular about what our own people eat, why, it is naturally to be presumed we do not care as much about other people as we do our own, or, on the other hand, if we are careless about our home consumption, are they not at liberty to presume we are about others? Mr. Editor, it should be your duty to see that this matter does not rest at the publication of self-criticism. NON LIBET.

CONTROL WORK.

UNDER date of April 1, 1900, the Department of Agriculture of North Carolina issued under advice of the State Veterinarian, Dr. Cooper Curtice, the following bulletin :

Acclimation disease in bulls has for years been a bar against improvement by introducing thoroughbred stock.

By observing a few precautions bulls may be brought to this State to any portion of the "stock law" district at any time of year without danger of loss.

If there are no cattle-ticks on the cattle of the farm, either transport the imported bull in a wagon from the depot (not unloading into the cattle pen), or drive him in the middle of the road after greasing his legs, and do not allow him to touch grass by the way. Grease them again when they arrive. Or on infested farms prepare a yard and shed in a field which has been cultivated during two years and no cattle allowed thereon. Build a double fence, the inside being of high, tight boards, and the outer, at a few feet distant, of wire that will keep stock away. Provide shade.

Set aside a special pen in which cows may be served. Clean each cow of all ticks before admitting her, and thoroughly grease her. When served take both away from this pen.

Feed correctly and allow plenty of exercise.

A certificate stating that the bulls are not infected with any communicable disease, and signed by the authorities of the State they started from, should accompany each importation. Buy any breed of cattle where quarantine regulations permit.

TUBERCULIN TEST DEMANDED.

TOPEKA, KAS., March 1, 1900.

To His Excellency W. E. Stanley, Governor of Kansas:

For the better protection of the domestic animals of the State of Kansas, and to prevent the spread of contagious and infectious diseases among the same, we herewith report to your Excellency the fact that tuberculosis, a dangerous and contagious disease, prevails to a greater or less extent among the cattle constituting the dairy and breeding herds of the States hereinafter named, and that cattle affected with this disease are being brought into the State of Kansas, and are liable to communicate said disease to other cattle with which they are brought in contact. Therefore, we respectfully request your Excellency to issue a proclamation prohibiting the importation of cattle from the States hereinafter named, except in accordance with the rules and regulations adopted by this Board and herewith submitted to you for your approval.

M. C. Campbell, Taylor Riddle, F. H. Chamberlain, members Live-stock Sanitary Committee.

PROCLAMATION BY THE GOVERNOR.

Whereas, The Live-stock Sanitary Commission of the State of Kansas on March 1, 1900, adopted the following rules and regulations:

Whereas, The Live-stock Sanitary Commission of the State of Kansas have ascertained that a great many of the breeding and dairy cattle in the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, Ohio, Kentucky, Tennessee, Indiana, Michigan, Illinois, Wisconsin, Minnesota, Iowa, and Nebraska are infected with a contagious and infectious disease in cattle known as tuberculosis, and that some of said cattle are being shipped into the State of Kansas for breeding and dairy purposes, it is, therefore, ordered:

First. That from and after this date it shall be unlawful for any cattle to be shipped, driven, or transported from the above-named States into the State of Kansas for breeding or dairy purposes; provided, however, that shipments may be made from such States into the State of Kansas for breeding and dairy purposes after said cattle have been examined and found free from tuberculosis, and a permit and bill of health given by a veterinarian of the United States Bureau of Animal Industry or a veterinarian acting under the order and direction of the live-stock sanitary board of any of the above-named States, and the certificate so given by such veterinarians shall be given in duplicate, the original of which shall be forwarded to the Secretary of the Live-stock Sanitary Commission, Topeka, Kansas, and the duplicate given to the railroad company, to be attached to the bill of lading for said cattle. And no railroad company shall accept any such cattle, nor bring nor ship any such cattle into the State of Kansas from any of the above-named States, for breeding or dairy purposes, without the certificate and bill of health herein provided for; and no railroad company shall accept from its connecting lines any cattle shipped in violation of this provision.

Second. Provided, however, that native cattle of the State of Nebraska may be moved into the State of Kansas upon the owner or person in charge thereof making affidavit, stating, in substance, that said cattle are natives of said State, and that said cattle have not been in any of the States above named for a year immediately preceding the making of said affidavit. Said affidavit shall be made before some officer authorized to administer oaths, and the above affidavit so made shall be given in duplicate, the original of which shall be forwarded to the Secretary of the Live-stock Sanitary Commission, Topeka, Kansas, and the duplicate shall be given to the owner or person in charge of said cattle, to be attached to the bill of lading for said cattle, or carried by the owner or person in charge when driven in; and no railroad company shall accept any such cattle for shipment, nor bring nor ship any such cattle into the State of Kansas for breeding or dairy purposes from the State of Nebraska, nor accept from its connecting lines any cattle shipped in violation of this provision.

Third. Cattle brought into Kansas from any of the above-named States for the purpose of exhibition at county, district, or State fairs shall not be subject to the above regulations; provided, however, that in the event sales shall be made from such exhibition, and the cattle destined to points in Kansas, the animal sold shall be submitted to the tuberculin test before the sale is consummated or the cattle moved or shipped to their destination. In case the test should show any such animals to be affected with tuberculosis, a permit for shipment to any point in this State shall not be granted.

Fourth. All railroad, live-stock, transportation, and stockyard companies, and their employés, and all other persons, are hereby forbidden to transport, drive, or in any way handle cattle in Kansas, except in compliance with the foregoing rules, under the pains and penalties of the following statute:

Extract of Chapter II., Session Laws of 1884. "Section 21. Any person who shall violate, disregard, or evade, or attempt to violate, disregard, or evade, any of the . . . rules and regulations, orders, or directions of the Live-stock Sanitary Commission establishing and governing quarantine shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than $100 nor more than $5000."

Sheriffs, constables, and police officers in Kansas are hereby directed to enforce these regulations, and to report any violations of same to this Commission.

In testimony whereof, I hereby set my hand, and cause to be affixed the great seal of the State of Kansas.

Done at Topeka, Kansas, this fifth day of March, 1900.

[SEAL.]

W. E. STANLEY,
Governor of Kansas.

By the Governor:
GEO. A. CLARK,
Secretary of State.

LEGISLATION.

IOWA'S VETERINARY LAW.

An Act to Regulate the Practice of Veterinary Medicine, Surgery, and Dentistry in the State of Iowa, and providing penalties for the violation thereof.

Be it enacted by the General Assembly of the State of Iowa:

SECTION 1. That it shall be unlawful for any person to practice veterinary medicine, surgery, or dentistry in this State who shall not have complied with the provisions of this act.

SEC. 2. Any person who has practised the profession of veterinary medicine, surgery, or dentistry in this State for a period of five years immediately preceding the passage of this act may be deemed eligible to registration as an existing practitioner, and receive a certificate of registration, upon presentation to the Secretary of the Board of Veterinary Medical Examiners, which shall be hereinafter constituted, his sworn affidavit and letters of recommendation from ten reputable freeholders and stock owners in his locality, all such applications to be made on or before January 1, 1901.

SEC. 3. Any person who is a graduate of a legally chartered and authorized veterinary college or veterinary department of any university or agricultural college, at the time of the passage of this act, or who shall hold a diploma from such institutions prior to 1901, shall be entitled to registration as an existing practitioner upon the presentation of his diploma, duly verified.

SEC. 4. The Governor of the State shall appoint a Board of Examiners, within sixty days after the passage of this act, said Board to be known as the State Board of Veterinary Medical Examiners. This Board shall consist of three qualified veterinarians, residents of the State, each of whom shall be a graduate of a legally chartered and authorized veterinary college or veterinary department of any university or agricultural college, and who shall be of good standing in the profession.

One of these members shall be appointed for one year; one for two years, and each succeeding appointment shall be for three years.

Each shall hold office until his successor is duly appointed and qualified.

No member of any veterinary college or veterinary department of the State university or agricultural college, or any person connected therewith, shall be eligible to appointment upon said Board.

The Governor shall fill any vacancy which shall occur on the Board, and may remove any member of said Board for continued neglect of duty, for incompetency, unprofessional or dishonorable conduct.

SEC. 5. This Board shall have power to make all needed regulations for its government and proper discharge of its duties in accordance with this act, and shall have power to administer oaths and take testimony concerning all matters within its jurisdiction.

SEC. 6. The meetings of the Examining Board shall be held at least once a year, or at such times and places as it may elect. At any meeting of the Board a majority shall constitute a quorum to transact business or to conduct examinations.

SEC. 7. Said Board shall receive applications for registration, according to Sections 2 and 3 of this act, and shall issue a certificate of qualification to all applicants who conform to the requirements for such registration, signed by the members of the Board, provided that the certificate thus granted specifically and plainly states whether or not the one to whom it is granted is a graduate or non-graduate in veterinary medicine. Such certificate shall be conclusive as to the rights of the lawful holder of the same to practice veterinary medicine, surgery, or dentistry in this State.

SEC. 8. The fee for registration shall be five dollars ($5), payable in advance to the Secretary of the Board.

SEC. 9. From and after January 1, 1901, any person not heretofore authorized and eligible to practice veterinary medicine, surgery, and dentistry in this State under Section 2 hereof, and desiring to enter upon such practice, shall be a graduate of a legally chartered and recognized veterinary college or veterinary department of any university or agricultural college, and shall pass the examination required by said State Board of Veterinary Medical Examiners.

The fee for such examination shall be fifteen dollars ($15), payable in advance to the Secretary of the Board. The applicant shall be at least twenty-one years of age and of good moral character. Any person conforming to these requirements shall receive a license to practice veterinary medicine, surgery, or dentistry within this State, signed by members of the Board, which license shall be recorded in the office of the recorder of the county in which said person resides, the recording fee to be paid by the holder of certificate.

SEC. 10. The Board shall keep a register of all registered practitioners in the State, setting forth such facts as the Board shall see fit. All fees accruing under this act shall be held by the Treasurer of the Board, who shall execute a good and sufficient bond to said Board to faithfully discharge his duties, and who shall pay out such funds only on vouchers certified by a majority of said Board.

SEC. 11. Each member of said Board shall be entitled to receive five dollars ($5) per diem, also actual and necessary travelling expenses incurred while actually engaged in the discharge of his official duties, provided such compensation and expenses do not exceed said income of fees accruing under this act.

SEC. 12. Any person violating any of the provisions of this act shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than twenty-five dollars nor more than one hundred dollars, or by imprisonment in the county jail for a period of not more than thirty days for each and every such offence.

It shall be the duty of the county attorney of the county in which violation occurs to conduct all proceedings against violators of this act.

SEC. 13. Nothing in this act shall be construed to apply to commissioned veterinarians in the United States army or to persons who dehorn cattle, or castrate domestic animals, or to persons who gratuitously treat diseased animals.

SEC. 14. Any person who shall, without having been authorized so to do, legally append any veterinary title to his name, or shall assume or advertise any veterinary title in such manner as to convey the impression that he is a lawful practitioner of veterinary medicine, or any of its branches, shall be guilty of a misdemeanor and punished according to the provisions of Section 12 of this act.

SEC. 15. In case the examination of any person shall prove defective and his name be not registered, he shall be permitted to present himself for re-examination within any period not exceeding twelve months next thereafter, and no charges shall be made for re-examination.

SEC. 16. The Board shall render under oath annually, on January 1st, to the Executive Council an account of all fees collected, per diem, and expenses paid, and pay over the balance into the State treasury.

Dr. W. B. E. Miller, recently in charge of the Quarantine Station at Garfield, New Jersey, has been succeeded at that point by G. W. Pope, of Boston, Mass. Dr. Miller will enter private practice again.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this Association was held at the Veterinary Department of the University of Pennsylvania, March 6 and 7, 1900. Meeting called to order at 10 A.M. by President J. C. Michener, of Colmar. The following members were present: Drs. John W. Adams, W. G. Benner, E. E. Bittles, S. P. Bishop, John L. Bradley, Francis Bridge, A. O. Cawley, M. J. Chrisman, M. J. Collins, M. E. Conard, John M. Courtright, H. B. Felton, J. T. Ferley, J. C. Foelker, S. J. J. Harger, Jacob Helmer, F. F. Hoffman, C. W. Holley, W. Horace Hoskins, J. D. Houldsworth, J. B. Irons, George B. Jobson, H. P. Keely, W. S. Kooker, L. O. Lusson, Clarence J. Marshall, J. T. McAnulty, James R. Mehaffey, W. A. Meredith, J. C. Michener, R. T. Mumma, Otto Noack, Leonard Pearson, A. W. Radley, E. M. Ranck, T. B. Rayner, James B. Rayner, John B. Raynor, N. Rectenwald, N. E. Reinhart, R. G. Rice, W. L. Rhoads, W. H. Ridge, J. W. Sallade, A. F. Schrieber, B. F. Senseman, G. K. Swank, E. E. Tower, H. W. Turner, B. M. Underhill, James A. Waugh, Charles Williams. Visitors: Drs. T. J. Kean, Philadelphia, Pa.; Elias A. Gruver, Richlandtown; C. J. Waidner, Hellertown; M. Moriarty, Gettysburg; F. F. Shue, Yorkana; L. E. Meade, Tunkhannock; N. H. Allis, Wyalusing; C. F. Keiter, Williamstown; W. H. Fry, Pine Grove Mills; W. B. Collom, Doylestown, Pa.; Ernest Spaeth, Gillette, Wyoming; H. P. Eves, Wilmington, Del.; Mr. Wm. Hammond, Glenolden, Pa.; Messrs. R. Y. Davison. J. W. Hayman, G. W. Horner, Wm. Hughes, John M. McCloskey, L. A, Nolan, O. M. Norton, E. W. Powell, B. H. Tallman, C. S. Shove, Frederick Stehle, Jr., C. R. Walter, Thomas White, students in attendance at the Veterinary Department of the University of Pennsylvania.

The minutes of the previous meeting were read and approved.

The election of officers for the ensuing year was as follows: President, S. J. J. Harger; First Vice-President, A. W. Radley; Second Vice-President, L. O. Lusson; Third Vice-President, N. Rectenwald; Recording Secretary, C. J. Marshall; Corresponding Secretary, E. M. Ranck; Treasurer, Francis Bridge; Trustees, Drs. Leonard Pearson, W. Horace Hoskins, George B. Jobson, Thomas B. Rayner, and F. F. Hoffman.

The following applications for membership were received: J. P. Stover, W. H. Mattson, S. W. Matthews, J. C. Kingsland, E. A. Gruver, N. H. Allis, C. J. Waidner, E. M. Crawford, M. A. Davies, C. F. Keiter, E. S. Muir, L. A. Klein, W. B. Prothero, M. Moriarty, D. A. Gorman, J. G. Bethune, and T. J. Kean. These applications were favorably reported by the Board of Censors and accepted as members of the Society. Dr. J. C. Kingsland was accepted as a member under the following condition, that he discontinue preparing and offering for sale his proprietary medicines. The Secretary read a letter from Dr. J. P. Vasey in reference to joining the Association, his name having been proposed at the last meeting. The letter was referred to the Board of Censors, who rejected his application.

The Secretary also read a letter from Dr. Zeno S. Keil, who regretted his inability to attend the meeting on account of sickness in the family.

Delegates from other societies were called, but none responded.

The Treasurer, Dr. Francis Bridge, reported that he had carried out the suggestion, made by himself at the last meeting, of giving a bond for the safe-keeping of the funds belonging to the Society. The first interest ever realized on the funds of the Association amounted to $4.25. The treasury is in the best financial condition in its history.

Reports of Committees.

Dr. W. H. Ridge reported from the Committee on Legislation, that the most important thing at present was the Army Legislation Bill, and emphasized the importance of filling out the petitions sent out by Dr. R. S. Huidekoper, and returning them at once to him, so that they might be presented immediately to the Senators.

The Committee on Sanitary Science and Police made no report. Dr. Ranck called attention to the fact that the Chairman of this Committee failed to inform the other members of the importance of collecting material for a report to be made at this time. It might be well to note here that chairmen of the several committees should make a special effort to notify the other members of the importance of getting their reports ready for the meeting.

Members of the Committee on a Relief Association, appointed at the last meeting, were not present, and the President then appointed Drs. Hoskins and Rayner on this committee. Drs. Rayner and Noack were opposed to this feature. Dr. Hoskins made some very forcible remarks in favor of such body. The committee simply reported progress.

Dr. Pearson spoke, in reference to the Committee on Legislation, that the next committee should be appointed with power to act, as the Legislature would be in session before our next meeting. The motion was moved, seconded, and accepted by the Association.

At this point the meeting adjourned for lunch at the University Restaurant, which the city veterinarians had prepared as a courtesy to the members from out of town.

Afternoon Session.

The meeting was called to order at 2 o'clock by the President.

Dr. Felton read a paper on "Urethral Calculi in Dogs." This interesting paper was discussed by many of the members present, and interesting cases were cited by the President, Dr. J. C. Michener, Drs. Otto Noack, Ranck, and Harger.

Dr. Ranck described the bacteriology of "swine-plague and hog-cholera," and told how the preventive inoculations of hog-cholera and swine-plague were carried out by the Bureau of Animal Industry. The results of this treatment have not been encouraging.

Dr. Goentner was to have read a paper on the subject of "Osteoporosis." The doctor not being present, the subject of osteoporosis was opened for discussion. President Michener, speaking on the subject, gave as his belief that it was due to too high feeding and lack of work, and believes that we should treat all cases by discontinuing grain and turning out at pasture, if possible. Dr. Kooker also reported several interesting cases of osteoporosis. Dr. Schreiber believes they should be killed at once when they show symptoms of osteoporosis. Drs. Waugh, Mehaffey, Rogers, Eves, Lusson, and Noack all made interesting remarks on this subject. Many questions were referred to Dr. Pearson by those taking part in this discussion. Dr. Pearson, in answering these questions, said many of these points were unsettled. He, however, made reference to the interesting investigations made at the Johns Hopkins University and also by Dr. White, of the Veterinary Department, and cited a case in Honolulu, reported in the English veterinary journals, which showed that the disease is of a contagious nature, and claims that it can be cured by moving from low lands to higher altitudes. He also spoke of a number of horses sent from here to Virginia as hopeless cases, which he saw last summer, and nearly all had recovered. He advises treatment by a change of locality, if possible, and thinks we should also take the sanitary precautions suitable for combating contagious diseases. Some experiments were carried out by himself at the University two years ago, in which he injected well horses with specimens taken from a horse afflicted with this disease, and none of them took the disease.

Dr. Ranck read his paper on "Snakes, Snake-venom and Antivenine." Several of the members discussed this paper and asked questions which were answered by the essayist.

Dr. Rogers reported his experience with antipneumococcic serum. Out of nine cases treated seven recovered; 25 c.c. were given in one dose, which was not repeated.

Dr. Rectenwald reported his treatment for purpura hemorrhagica with the soluble collodiale of silver, with good results. Dr. Hoskins used the same treatment with equal success.

The appointment of librarian was discussed by the members, which resulted in the election of Dr. Hoskins.

Meeting adjourned at five o'clock.

Most of the members attended clinic the next morning before the meeting was called at 10.45. A horse with a peculiar heart-beat was exhibited and examined by most of the members present. In the absence of Dr. Robert Meade Smith, his paper on the subject of "Feeding Dairy Cattle" was read by Dr. Leonard Pearson. The paper was highly appreciated and thoroughly discussed. Dr. Jobson spoke of the importance of exercise for animals. In making a record in the production of milk and butter some animals were fed four times a day and given pepsin, one feeding being at midnight.

Dr. John W. Adams gave an interesting discussion on the subject of "The Eye," and illustrated his remarks with charts and showed how to use the ophthalmoscope, and emphasized the fact that this instrument was of little practical use to the veterinarian, and spoke of the importance of examining the eyeball from different directions, to compare the convexity and size of the eyeball; also the color of the iris should be observed as well as the pupillary margin, the black spots on the lens, etc. In examining the eye we should have the horse facing the light, with a dark background and as few objects in front of the horse as possible, as reflections from these objects tend to confuse the observer. The subject being open for discussion, many questions were asked, and some of the members reported the favorable use of Lugol's solution in the treatment of periodic ophthalmia by injecting one drachm above the orbit.

There was considerable discussion as to the use of the treatment of goitre with Lugol's solution. Dr. Waugh, of Pittsburg, claims to have had bad results from this treatment. Dr. Adams advised the use of equal parts of alcohol and iodine, which should be given in increasing doses, injected directly into the gland, then wait until the swelling subsides and repeat the treatment. The surgical removal of the gland is not advisable.

The following places were recommended for the semi-annual meeting, which is to be held on the third Tuesday in September: Erie, Allentown, Trevose, and West Chester. Erie received the largest vote, and it was decided to hold the next meeting there.

Dr. Kean read an interesting paper on the subject of "Horseshoeing," and advocated the usefulness of the rolling-motion shoe.

The annual report of the Corresponding Secretary was then read, which was as follows:

Annual Report of the Corresponding Secretary for the Term ending March 7, 1900.

MR. PRESIDENT AND FELLOW-MEMBERS OF THE PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION: In making this my final report as Corresponding Secretary of what I believe to be the most energetic and prosperous State Association in existence, I am free to say I do so with a certain feeling of regret, as my work for the past three years has brought me into close touch with every member of our Association as well as a large number of veterinarians throughout the State who are as yet not of our number, thus creating a fraternal feeling which cannot be felt or appreciated by one who has not become thoroughly interested in Association affairs. Yet I give up the arduous labors of Corresponding Secretary with a feeling of thankfulness, of sincere pride, and gratification. Thankful for the assistance of every member who has responded to my appeals for money —and I have asked for it many times—or literary contributions, for demonstrations; for we know that cash alone, though very essential, will not make an association a success when it is laboring, as we are, for the advancement of the most noble profession on earth from a sanitary, scientific point of view. Thankful that these men have responded at all times so readily, for I must admit many times the notice was very short, indeed. Thankful for the hearty support given me at all times by my brother officers. Thankful especially to our brother-members Drs. Pearson and Hoskins for the many helps they have extended to me throughout my tenure of office.

I am proud that the Association, through your missionary work (and I know full well at many times it has been laborious), has within the last three years increased its finances by several hundred dollars; that it has increased its membership by fifty-four new men, thus bringing much new blood, new vigor, and new life. I am proud that throughout this time our Board of Trustees has held such a censorship that we can well feel each of these men will not only be a help in many ways, but without exception an honor to our Association.

I am gratified that this work should have fallen upon the shoulders of one whom I feel full well is deserving of the honor, and it is undoubtedly an honor, as herein much harm may be done or much good accomplished. In fact, the destiny of your Association lies in the hands of your Secretaries. I transfer with pleasure the duties and emoluments of the office to

Dr. Ranck, knowing that through his efforts, backed by his energy and perseverance, our finances, membership, and patronage will increase.

I have the following to ask you, gentlemen: First, that you will all read your book of by-laws, especially that part relating to dues, then those of you who have not already done so turn over a new leaf and pay your dues in advance; secondly, that you will extend to Dr. Ranck, as you have to me, every courtesy and help.

I will give you a brief *résumé* of my work the past three years. In March, 1897, the State of Pennsylvania had twenty-six counties represented in our State Association; March of 1900 there are thirty-nine counties represented in our Association. In March, 1897, we had 117 names on our active membership list; we now have 132 *good*, active members (with the emphasis on the good) on our active membership-list; also 33 names which I have submitted to the Board of Censors for expulsion, thus purging our list of all delinquents; also a list of three who have left our State while in good standing, and whom I suggest be listed as corresponding or associate members. Our honorary membership-list remains the same, as honors in our Association come hard. Our list of deceased members is increased by the death of Dr. John J. Smith, of Chambersburg. Our list of resignations has increased by three, viz., W. A. Heckenberger, of Catasauqua; E. Sturge, of Scranton, and W. L. Zuill, of Philadelphia. Our list of expelled members will, I fear, be at this time augmented by thirty-three new ones.

I have received as dues since March of 1897	$509.00	
I have received as membership fee from 54 new members at $5 each	270.00	
Making a total of		$779.00
My expenses have been as follows:		
For year ending March, 1898	$103.05	
For year ending March 7, 1899	185.05	
(This amount includes the printing and distribution of the By-laws.)		
For year ending March 7, 1900	94.00	
(The check for balance of $86.25, which I received from my predecessor, Dr. F. S. Allen, I enclosed to our Treasurer, Dr. Francis Bridge.)		
I hold receipts for other moneys paid by me to Dr. Bridge to the amount of	317.50	
		699.60
Leaving a balance in my hands due the Association of		$79.40
Moneys received by check from F. S. Allen	$86.25	
Moneys received as dues	509.00	
Moneys received as membership fees	270.00	
		865.25
Paid out check of F. S. Allen	$86.25	
Moneys paid Dr. Bridge from dues—		
Membership fees, as follows: March 7, 1899	$100.00	
March 18, 1899	42.50	
March 6, 1900	175.00	
Expenses	382.10	
Balance in my hands	79.40	
		$865.25

Respectfully submitted, March 7, 1900.

W. L. RHOADS,
Corresponding Secretary

Dr. Charles Williams then read an interesting paper on the subject of "Antitoxin Treatment for Distemper in Horses."

The Board of Trustees then made their annual report.

The Committee on Resolutions reported the following:

Reappointment of State Veterinarian.

WHEREAS, The Hon. William A. Stone, Governor of our State, has since our last meeting appointed our esteemed colleague, Dr. Leonard Pearson, to the position of State Veterinarian; and, WHEREAS, In so doing he has not only observed the wishes of the representatives of the live-stock interests in our State, but has also met the desire and request of this organization; therefore be it *Resolved*, That we assure the Governor of our sincere appreciation of this action, and feel assured that the administration of the State Veterinarian will prove the best evidence of the wisdom of his selection.

State Board of Veterinary Examiners.

WHEREAS, The Governor, Hon. William A. Stone, has recognized the valuable services of our colleague, Dr. J. W. Sallade, and has reappointed him on the State Veterinary Medical Examining Board, and has, moreovers appointed the nominees of this Association, Drs. W. H. Ridge and Jacob Helmer, to fill the remaining vacancies on the Examining Board, and by this means has advanced the interests of the veterinary profession; be it *Resolved*, That the thanks of this Association are hereby tendered His Excellency, Governor Stone, who has acted in this matter for the best interest, of the public and entirely in accord with the wishes of this Association.

Good Roads.

WHEREAS, The matter of good roads in Pennsylvania is a subject of such extreme importance that it constitutes one of the pressing public questions of the day, and the value of good roads is no longer a matter of conjecture or one upon which there is justifiable difference of opinion; and WHEREAS, The efficiency and value of horses and the comfort and pleasure of using them are augmented by good roads; be it *Resolved*, That we unqualifiedly approve the efforts being made by the State Department of Agriculture in behalf of good roads, and earnestly commend the excellent work already accomplished in this direction by the Secretary of Agriculture, Professor John Hamilton.

Veterinary Department's Facilities.

WHEREAS, Our Association has again been favored by the University of Pennsylvania's Veterinary Department with its splendid facilities for the holding of our annual meeting; and WHEREAS, we desire to express our grateful appreciation of these privileges afforded us, the courtesy and kindness of the employés of the department, and hereby tender our sincere thanks for the same.

Our Post-Graduate Course.

WHEREAS, The initial effort to establish a post-graduate course of instruction in connection with the work of our State Live-stock Sanitary Board at the University of Pennsylvania Veterinary Department; and WHEREAS, The success attending this effort has so far exceeded in every direction the most sanguine anticipations and hopes of those directing the work; be it *Resolved*, That we tender our University, her corps of instructors, our State Veterinarian, who has so successfully directed the same, and State Association our cordial indorsement of the same, our congratulations on the success of the effort and our unanimous request that this course become an annual one.

The new officers were then duly installed with the exception of President Harger, whose place was filled by second Vice-President Dr. L. O. Lusson.

The Association then adjourned to visit the H. K. MulfordLaboratories, which closed the annual session for 1900.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

THE annual meeting of the Society was held in Madison, March 14th, at the Hotel Van Etta. The meeting was called to order by the President, Dr. D. Roberts, at 2 o'clock P.M. Present: Drs. B. L. Clark, W. G. Clark, A. H. Hartwig, R. S. Heer, S. S. Snyder, G. Ed. Leech, D. Roberts, E. D. Roberts, and Charles Schmitt. Visitors: Drs. Simon Beattie, Madison, and Walter Pick, Lodi. The minutes of the last meeting were read and approved.

The Secretary's report of accounts was read and accepted. The Treasurer's report was read and accepted.

Dr. Hartwig brought up the subject of prosecutions under the new law; discussed by Drs. Leech, Heer, and Schmitt.

Under the head of new business, a communication from Dr. W. E. A. Wyman tendering his resignation from the Society was read and discussed by Drs. Leech, Schmitt, Clark, Snyder, and Hartwig. On motion Dr. Wyman's resignation was accepted. On motion, the Secretary was instructed to retain Dr. Wyman's certificate of membership and return his membership fee. It was moved by Dr. Leech and seconded by Dr. Hartwig, that the President and Secretary be empowered as a committee to restrict Dr. Wyman from using the Society or the Society's interests in any way to further his personal interests, and that the President and Secretary be given the power of attorney to prosecute the case if necessary; carried.

The application of Drs. S. Beattie and W. R. Pick being reported on favorably by the Censors, they were balloted on and declared elected to membership.

The Secretary was requested to read Section 7 of the Code of Ethics in regard to live-stock insurance companies. The Secretary then read a report of the financial condition of the Badger Mutual Live-stock Insurance Company of Milwaukee. Discussed by Drs. Leech, Hartwig, Clark, and Schmitt. Moved by Dr. Leech and seconded by Dr. Heer, that the Secretary forward to all members of the Society not present a marked copy of the Constitution and By-laws.

On motion the Society proceeded to the election of officers. Moved and seconded, that the election be by *viva voce* vote; carried. The election resulted as follows: President, A. H. Hartwig, Watertown; Vice-president, J. F. Roub, Monroe; Secretary, W. G. Clark, Marinette; Treasurer, S. S. Snyder, Cedarsburg; Censors, H. P. Clute, Marinette; R. S. Heer, Plattville, and B. L. Clark, Monticello.

On motion it was decided to hold the semi-annual meeting at Milwaukee in the month of September.

On motion, Drs. Ormond, Leech, and D. Roberts were appointed a committee to make arrangements for the semi-annual meeting.

On motion, the Society adjourned, to meet at eight o'clock.

Evening Session.

Meeting called to order at 8.30 by the President, Dr. A. H. Hartwig.

The first subject on the programme was a paper on "Periodic Ophthalmia," by Dr. G. Ed. Leech, Milwaukee. It was carefully prepared and presented the latest researches in both human and veterinary pathology in regard to this disease. Discussed by Drs. E. D. Roberts, Hartwig, Schmitt, and D. Roberts. On motion, the discussion was closed and a vote of thanks tendered the essayist.

In the absence of Dr. Wyman, his paper on "Mesoperoneal and Double Peroneal Neurectomy" was read by the Secretary. In the absence of Dr. Wyman the paper was not discussed.

Drs. Leech, Heer, and E. D. Roberts discussed "neurectomy."

The use of eserine sulphate, barium chloride, etc., were quite fully discussed. Dr. Leech recommended oil of eucalyptus in drachm doses hypodermatically or orally for intestinal flatulence.

The use of potassium iodide in the treatment of azoturia was discussed. Dr. D. Roberts reported favorable results when combined with sodium bicarbonate. Drs. Leech, Heer, and Hartwig reported unfavorable results from the treatment.

On motion, the Society adjourned to meet at Dr. Beattie's hospital for clinics at 8.30 the next morning.

CLINICS.

Dr. Beattie presented a case that had showed difficulty in respiration, gradually increasing for a year or more. On examination the horse was found to have suffered a fracture of the nasal bone. This case was not operated on, as the weather was very cold.

Dr. D. Roberts performed ovariotomy on a bitch, and did the operation very quickly and neatly.

Dr. H. P. Clute gave a demonstration in veterinary dentistry, after which the Society adjourned to meet in Milwaukee next September.

W. G. Clark,
Secretary.

MISSOURI VALLEY VETERINARY ASSOCIATION.

The twenty-third regular meeting was held in the Kansas City Veterinary College, Kansas City, Mo., on the evening of February 19th, at 7.30 o'clock. It was arranged to have a surgical clinic on the afternoon of the same day, but owing to the absence of subjects no clinic was held. Owing to the absence of the President, Dr. Forbes, the meeting was called to order by the Second Vice-President, Dr. Schaeffer, with the following officers, members, and visitors present: Drs. Schaeffer, Wright, Milnes, Washburn, Bennet, Kaupp, Cooper, Buckley, Saunders, Moore, and Stewart, with Drs. Falsetter and Knight (from Texas), George, Boise, and Lawton; also Messrs. Lomax, Painter, Mahon, Lawrence, Starr, Kampochmidt, McFarland, Parker, Carswell, Burgett, Philips, Moberly, Roach, Reber, Rice, Makins, Miller, Barnhart, Immerman, Crickett, Mooney, Biggs, and Halstead. The minutes of the previous meeting were read and approved.

The Censors having reported favorably upon the application for membership of Albert Long, it was moved by Dr. Stewart that the rules be suspended and the Secretary instructed to cast the ballot for the Association; motion carried. The Secretary cast the ballot for the Association, and the candidate was duly elected. The resignation of Dr. Frank C. McCurdy was read, and on motion was accepted.

No other business being on hand, the literary programme was then begun, which was as follows:

"In-breeding," by Dr. L. Bennet; discussion led by Dr. Ross Cooper. "Clippings from German Veterinary Journals," by Dr. Washburn; discussion led by Dr. Stewart. "Scientific Horseshoeing," with exhibition of specimen shoes, by Dr. Charles Saunders. All the papers brought forth a great deal of good and interesting discussion, and especially with the paper of Dr. Saunders; it was eagerly listened to, and a great many new and valuable points were obtained. The specimen shoes Dr. Saunders had on exhibition were a rare treat to all who saw them.

After the literary programme a vote of thanks was tendered the essayists of the evening for all their excellent papers. By vote the Society decided to meet in St. Joseph, Mo., in June.

J. B. WRIGHT,
Secretary-Treasurer.

CHICAGO VETERINARY SOCIETY.

ON Monday evening, March 12th, the regular monthly meeting of the Society was called to order by President Hughes, in the hall 912 Masonic Temple. Twenty-seven of the members were present, all of whom aided in bringing about a very entertaining and enjoyable evening.

The report of the special committee instructed to wait upon the Telephone Company and learn why veterinarians are not granted the same privilege that physicians are in the free use of drug-store telephones, was presented by Dr. E. L. Quitman. He said the company allows physicians to use public telephones, by request of drug-store keepers, in payment for the space occupied in their stores.

A paper on "Post-mortem Inspection of Cattle" was presented by Dr. James G. Fish. All present participated in a prolonged and very interesting discussion.

Dr. A. C. Worms denounced the State Veterinary Law as a piece of worthless legislation gotten up for the benefit of a few "grafters," which provoked an extended discussion.

The regular monthly meeting of the Society was called to order by President Hughes on Monday evening, April 9th, in the hall 912 Masonic Temple. Twenty-five members of the Society were present, and a very interesting evening was spent. Following the regular order of business, Dr. L. A. Merillat presented a very valuable contribution on "Belladonna," leaving very little open for discussion. All were pleased and highly interested in the paper, which was discussed by Drs. Robertson, A. H. Baker, and Dr. Hughes. Drs. Merillat and Robertson entered upon quite a lengthy debate on numerous subjects, from belladonna to electricity and palmistry.

President Hughes introduced Professor Mauerman, of Northwestern University, who spoke and showed slides of actinomycosis. During the discussion of Dr. Fish's paper at the March meeting the percentage of tuberculous udders found upon post-mortem was brought up; many of the inspectors have failed to differentiate between tuberculosis and actinomycosis on clinical examination; one of the udders in question was submitted to Dr. Mauerman and found to be actinomycosis on microscopical examination. After a highly interesting discussion it was resolved to adjourn.

JOS. B. CLANCY,
Secretary.

THE KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE regular monthly meeting was held at Dental Hall, Thirteenth and Arch Streets, Tuesday, April 17, 1900, President Eves in the chair, who called the meeting to order at 9.15 P.M. Owing to the absence of Secretary Rhoads, the chair appointed E. M. Ranck, Secretary *pro tem.* The reading of the minutes of the previous meeting and roll-call had to be dispensed with on account of the absence of the Secretary and minute-books. The following members of the profession were present: Drs. Eves, Hoskins, Lintz, Pearson, Marshall, T. B. Rayner, and Mr. Carlisle, '01 Veterinary Department of the University of Pennsylvania.

Report of Room Committee, by C. J. Marshall, chairman, also presentation of bills for same, on which motion to pay respective amounts carried.

Discussion on "Milk" meeting, which was held in the same hall one month previous, by Drs. Hoskins, Marshall, and Eves, followed by remarks by Dr. Hoskins on the removal of Dr. J. W. Adams as consulting city veterinarian, as well as the resignation of one of the milk inspectors and the appointment of a milk gatherer to the same position by the Mayor at the same salary.

Discussion on the agitation of the "oleomargarine" and other food products brought out the fact that the subordinate officials seem to be well protected by the governing officials, the whole affair based on the "spoils system."

Report of a case of azoturia, by Dr. Hoskins, in a Western mare which had partially recovered from an attack of influenza, the peculiarity of the case being a paralysis of the nerve supplying the anterior straight muscle of one posterior limb. Treatment: Usual course in connection with electricity, with no marked effect.

There being no further business, the meeting adjourned to meet at the same place the third Tuesday in May.

E. M. RANCK,
Secretary pro tem.

ASSOCIATION MEETINGS.

THE regular meeting of the Veterinary Medical Association of New Jersey will be held at Jacoby's, 882 Broad Street, Newark, N. J., Thursday, May 10th, at 10 A.M.

S. LOCKWOOD,
Secretary.

THE NIAGARA AND ORLEANS COUNTY VETERINARY MEDICAL SOCIETY.

An organization meeting was held on April 14, 1900, in the parlors of the Rich Hotel, Middleport, N. Y. Drs. Stocking, Williams, and Crowforth were appointed essayists for the next meeting of the Society, which will be held in Lockport, N. Y., August 11, 1900, and will be known as the annual meeting.

Anderson Crowforth,
Secretary-Treasurer.

PERSONALS.

Dr. F. T. Shannon, graduate of the Veterinary Department of the University of Pennsylvania, an attaché of the Bureau of Animal Industry, recently located in Southern California, and now connected with the pathological department of the bureau at Washington, was a visitor to Philadelphia in March.

Dr. W. H. Pendry, of Brooklyn, N. Y., has been suffering for more than three weeks, but is now again in harness.

Dr. E. P. Flowers, of Dallas, Texas, is taking a post-graduate course at the University of Pennsylvania Veterinary Department.

Professor Andrew Smith, of Toronto, has been selected as President of the Industrial Fair to be held in that city in September next.

Dr. E. P. Spaeth, of Gillette, Wyoming, was a visitor to Philadelphia in March, and addressed the Students' Society of the Veterinary Department on "Sheep Raising."

Drs. John W. Adams and E. M. Ranck, of Philadelphia, were severe sufferers from influenza in March, and were confined to their rooms for a number of days.

Dr. William Dougherty, of Baltimore, Md., was off duty for several weeks in March. Dr. Martinet looked after the doctor's practice while ill.

Dr. W. S. Manley, of Pittsburg, Kansas, was a visitor to the Kansas City and Western Veterinary Colleges in March, attending the closing exercises.

Dr. George Fuller, of Marshall & Fuller, veterinarians, of Philadelphia, was on the sick list for two weeks in March.

Dr. E. E. Sayers continues to fill the all-important post of Mayor of his city, Algona, Iowa.

Dr. James B. Rayner, of West Chester, Pa., was confined to his house for two weeks in March.

Dr. H. D. Gill, of New York City, is building a very complete equine and canine hospital, residence and laboratories combined.

Dr. George B. Jobson's subject at the Pennsylvania Jersey Cattle Breeders' Association was entitled "A Healthy Herd, and How to Keep it So." State Veterinarian Pearson addressed the same body on the importance and value of "Certified Milk."

Dr. T. Delaney, of New York City, was a purchaser of one of the choice pairs of show horses at the recent sale of the estate of C. F. Bates.

Dr. Guildin R. Hartman, of Philadelphia, milk inspector of the Board of Health, was arrested in the latter part of March, charged by a city dairyman with extorting money to suppress information in his possession of a violation of the milk ordinances of this city.

Dr. William H. Lowe, of Paterson, N. J., takes an active part in city affairs, and is ever ready to lend a helping hand for what is for the welfare of his city.

Dr. W. S. Kooker, of Philadelphia, has been in poor health all winter, due to digestive derangement.

Dr. Harry Walters, formerly of Wilkesbarre, has located in Trenton, N. J., where he is conducting a sanitarium for nervous diseases of the human family.

Dr. W. Horace Hoskins, of Philadelphia, was a visitor to New York in March, in connection with matters pertaining to the welfare of his alma mater.

Dr. Walter L. Burt, formerly of Providence, R. I., now of Port Chester, N. Y., gives his entire attention to the purchase and sale of high-grade coach and driving horses.

Dr. William Dimond, of Newark, N. J., takes an active part in municipal affairs, and is the candidate of the Democratic party for membership on the Board of Public Works.

Dr. S. E. Weber, of Green Lane, has entered the sanitarium of Drs. Walters and Arnold at Trenton, N. J.

Professor Wesley Mills, of Montreal, Canada, is spending some time in Germany.

Dr. A. J. Tuxill, of Auburn, N. Y., is rapidly regaining his old-time health and strength after a long period of illness.

Dr. J. Stewart Lacock, of Allegheny, Pa., fills the rôle of veterinarian to the Duquesne Kennel Club of Western Pennsylvania. The club holds its show the latter part of April.

Dr. Benjamin A. Harris, of Boston, Mass., has entered the commercial world and engaged in the sale of horse clothing and stable equipments.

Dr. Levi Collner, of St. Petersburg, Pa., has been on the sick list for a time.

Dr. W. F. Smith, of Amsterdam, N. Y., has resigned his position as manager of the Hurricane Stud Farm, to locate in England.

Dr. Joseph Heagerty has become the city veterinarian for Baltimore, Md., having received the appointment at the hands of Mayor Hayes, who was recently installed as Chief Magistrate of the "Oriole City."

Dr. W. N. D. Bird, of the Bureau of Animal Industry, has been transferred from St. Louis, Missouri, to East Buffalo, N. Y.

Dr. H. E. Wand, of Ambler, Pa., has changed his location, and rumor has it that he has gone to Old England.

Dr. W. Horace Hoskins, of Philadelphia, represents one of the city districts on the State Central Democratic Committee.

Dr. Charles Gresswell, of Denver, Col., in addition to his professional work, is engaged extensively with others in the cattle trade.

Mayor Ashbridge, of Philadelphia, has failed to reappoint Dr. John W. Adams, consulting city veterinarian, at the expiration of his term on April 1. It will be well to note the attitude of the Chief Magistrate of the "City of Brotherly Love" in his selection of a successor to Dr. Adams.

Dr. E. M. Ranck, of Philadelphia, has been doing some special work for the State Livestock Sanitary Board among cattle in the neighborhood of his former home in Lancaster County, Pa.

Dr. Stephen L. Blount, of Temple, Tex., was among the applicants for meat inspector at the April examination.

Dr. W. E. D. Rushworth, of Buffalo, formerly of the meat-inspection service, has become assistant manager to the Pasteur Vaccine Company, and with his knowledge of sheep and among sheepmen will be of much value to them in their field of work.

Dr. R. C. Moore, of the Kansas City Veterinary College, was recently appointed assistant State Veterinarian of Missouri.

Drs. S. D. Larzelere, of Jenkintown, Pa.; A. T. Sellers, of Camden, N. J., and W. Horace Hoskins, of Philadelphia, were among the Easter boardwalk visitors at Atlantic City, N. J.

Brewer Nolan, the pet of the senior class of the Veterinary Department of the University of Pennsylvania, tarried long beyond the allotted time from class duties at "Eastertide." Dame rumor has it that the attraction of Easter novelties and costumes among the fair ones of the "Oriole City" tells the tale.

Dr. P. M. Minster, of Langhorne, Pa., finds the exacting duties of his profession, his drug store exactions, and as president of the local board of health, a severe strain on his physical condition.

Dr. Leonard Pearson, of Philadelphia, was a visitor to Boston, Mass., in April, paying a visit to the Veterinary Department of Harvard University.

Dr. William H. Martinet, of Baltimore, is likely to secure the position of Assistant State Veterinarian of Maryland.

Dr. James Beatty, of the Quarantine Service of the Bureau of Animal Industry, has been transferred to "Greater New York," where he will find a more congenial location.

Dr. B. F. Minnich, of Columbia, Pa., is an admirer of the trotting-horse, and recently added an "Allerton" colt to his list of roadsters.

Dr. C. E. Clayton, assistant-surgeon of the New York American Veterinary College Hospital, has severed his connection therewith and entered upon private practice in New York City.

Mr. L. A. Nolan, senior student of the Veterinary Department of the University of Pennsylvania, is a great admirer of the mastiff variety of canines.

Dr. A. D. Eastman, of East Trumbull, Ohio, is a breeder of registered Jersey cattle and Chester White swine.

Dr. J. Stewart Lacock, of Pittsburg, finds in the dog shows of the land a field of pleasure and delight as he notes the added ribbons to his petted companions.

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[Written especially for the JOURNAL.]

MUNICIPAL MEAT INSPECTION.

THE commercial spirit may be credited with the establishment, in this country, of Federal meat-inspection. A better milk-supply has been the result of the dealer's desire to hold his trade. It will be commercialism rather than health that will compel municipal inspection of meat, and the compelling agent will be the physician. This proposition is therefore submitted, that the physician is the most important factor at present in the development of municipal meat-inspection.

Like all other branches of the science of medicine, that of dietetics has had a gradual development, and it is still in process of evolution.

There was the time when, barring milk-punch or the broths, the physician wisely left dietetic suggestions to the old nurse, with the mere direction that the patient be kept on a low diet or "fed up." Now the physician writes his diet lists for diabetes, rheumatism, the various dyspepsias, gout, uric acid, Bright's disease, etc. Accordingly he makes his suggestions, now for a beef diet, again for a milk diet, at another time for a diet consisting entirely of vegetables. He goes further. He distinguishes between meats of long fibre and short fibre, proscribing the one, prescribing the other. So he goes over the vegetable foods, making selected lists for the needs of different classes of patients.

It was not at all out of place, a number of years ago, for Dr. Sydney Ringer to introduce into his therapeutics a department of dietetics in which were found simple but excellent recipes for the dietary of the sick.

"Must the physician be a nurse?" used to be many times asked. It has come to be answered that the physician who understands the art of nursing will, other things being equal, secure beyond his confrères the public confidence. "Must the physician be a cook?" I suppose was asked when Ringer appended his dietary to his therapeutics. While he may not need to be capable of engaging as chef to the Waldorf-Astoria, experience has demonstrated the wisdom of the physician being, at least, enough of a cook to direct, when necessary, in the preparation of articles of food for his patient.

There was a time when the quality of the milk was left, by the physician, entirely to the cow. Where he found that the quality of the milk was modified by the mercenary spirit of the dealer, the physician secured the passage of laws intended to prevent this. When the veterinarian had proved the existence in the cow of certain diseases, like tuberculosis, and had demonstrated the possibility of contagion through the milk, the physician made a demand for the inspection of dairy herds. He has learned now that milk is a remarkable carrier of disease through germs introduced from without, and, knowing that the greatest possible care cannot altogether prevent this, he has begun to recommend a Pasteurized milk. And it is in response to the physician's demands, based upon facts demonstrated by scientific investigation, that milk dealers are compelled to-day to offer a milk made pure by Pasteurization.

It is not too much to expect that the same history will be repeated in regard to meat. The time must come when the physician shall be as well posted on all the diseases which affect the food value of all food-producing animals as he now is on the diseases which are generally traced directly or indirectly to the milk-supply. The time is almost here when the physician will be as well acquainted with the purposes and methods of meat-inspection as he now is with milk-inspection. And then he will begin to demand inspection of meat, and he will express that demand through the laws of the Board of Health. And when that time comes we shall see that the physician will keep himself informed as to the houses from which inspected meat comes, and urge that meat, and that only, upon his patients. Then, the pocketbook of the butcher being touched in a legitimate way, the dealer himself will court inspection as the abattoirs now ask for Federal inspection in connection with interstate trade.

The veterinarian has done his work and done it so well that in a number of instances States and cities have responded to that work in the passage of laws requiring inspection of meats. But in many places political jobbery has stepped in, and men unfitted for the work have been appointed. It is simply another case of laws being vitiated in their operation by their premature birth—that is, by being enacted ahead of an enlightened sentiment. And that enlightened sentiment in regard to meat-inspection must be secured through the agency and co-operation of the physician. Hence a repetition of the proposition with which this began: the physician is the most necessary factor in the further development of municipal meat-inspection.

It is useless to attempt to refute the charge that in advocating inspection of meats by trained veterinarians a "job" is wanted. Too often have government positions been developed on that principle, and the world is too busy to stop and minutely investigate individual character and motives. It makes its judgments wholesale.

What, then, is needed? Just this: That the physician shall be trained in the necessity and methods of meat-inspection, and so be placed in position to intelligently advocate it. The graduated physician must be trained through the articles in medical journals and through papers and addresses at society meetings. This was urged a year ago by an honored member of the profession; but you cannot compel a man to read medical journals, nor can you compel him to attend society meetings. So let us direct our work upon the coming physician. Through the few who possess the influence rather than through the many, let us urge the establishing in medical schools of lectureships on milk-inspection and meat-inspection. Let them be at first optional courses. And let us, as the men fitted by training and practice, especially those who are inspectors, hold ourselves ready to offer even gratuitous service on this line. Here is the opportunity to disprove the charge above referred to. There is work in such a lectureship, but an interest in the welfare of the community should lead us to be satisfied in the pioneer days of such a movement to put forth labor the appreciation of which may not be in dollars and cents.

It is a pleasure to recall the Harvard Medical School, and to point to its endowed chair of comparative pathology, whose incumbent, Dr. Theobald Smith, for years did worthy service in the Bureau of Animal Industry. This is a story more in the direction advocated by this paper. There may be other medical schools that have made such addition to their studies, but it has not been the fortune of the writer to see their curricula.

Let every member of the profession, every qualified meat-inspector, go forth with this sentiment: milk-inspection and meat-inspection taught in every medical school in the land. I would not have it taught in the same minute manner that it should be taught in veterinary schools, but *have it taught.* It might be, for a while, only an arm of the chair of hygiene, but *have it taught.* It might be but a leg of the chair of dietetics, but *have it taught.* Surely the incumbent of either the chair of hygiene or the chair of dietetics would be glad to have this course supplemented by a few lectures and demonstrations by a trained inspector—in some way, in any way—on milk-inspection and meat-inspection in every medical school in the land. Then, as surely as day follows night, meat-inspection will be called for by an intelligent popular demand, fostered by the sentiment of the medical profession.

SOME OF THE DANGERS OF AN IMPURE MEAT-SUPPLY AND MILK-SUPPLY.[1]

By W. H. Dalrymple, M.R.C.V.S.

The success of all great reforms is largely dependent upon the education of public opinion. Ignorance is the mighty incubus which retards the advancement of all progressive movements. Science has had to struggle on through the ages against the enormous odds of incredulity, indifference, and superstition; but truth will prevail, and scientific investigation, which is but the searching after truth, although hampered on all sides by those influences which are born of ignorance, superstition, and doubt, is slowly but surely revealing the true nature of things, and must eventually and effectually succeed, but the rate of progress, in the accomplishment of the desired end, will greatly depend upon the acceptance of the revealed truths by the people, which can only be attained by the education of public opinion.

There is no education more valuable in its possession, nor more philanthropic in its aim, than that which has for its object the amelioration of the conditions of our fellowmen. Life without health is an emasculated existence, shorn of everything that goes to make up the pleasure of living; and the individual, the association, or the community of whom it can be said that he or they inaugurated or stood up for reforms that resulted in the preservation of health, or the prolongation of even one human life, has accomplished a work the value of which can hardly be estimated.

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[1] Read before the Louisiana State Sanitary Association at Baton Rouge, June, 1899.

What are the purposes and objects of this association? They may be summed up in the following sentence: The conservation of public health and the prolongation of human life and its hope of success lie mainly in being able to place before the people scientific facts along the various branches of sanitation in a way that they can be received and intelligently acted upon, so that by concert of action much-needed reforms may be brought about, disease lessened, death made more remote, and health and happiness vouchsafed a more extended reign.

It has been stated by some authority that disease is more dependent upon food and water than upon all other influences combined. This seems a very astounding assertion when we consider that life itself is also dependent upon the same. It must be understood, however, that there is a very great deal of difference between wholesome food and water and that which is capable of producing disease; and it is a fact of the utmost importance, and one which ought to be indelibly impressed upon the mind of everyone, that although both, in a pure and wholesome condition, are necessary to life and health, they also form suitable media for the cultivation and development of various pernicious agencies in the form of pathogenic bacteria and other parasitic forms which render them especially dangerous as food articles for human consumption. It is along this line of thought that I desire to ask your attention for a short time, and I would like to lay especial stress upon the desirability of securing for city populations a meat-supply and milk-supply that are as pure and wholesome as it is possible to make them.

Let us for a moment consider some of the agencies that render these articles of human food inimical to the health of the consumer. I will only mention a few, but quite sufficient to emphasize their importance as a source of danger to public health.

I will be forced to refer to some facts which may be somewhat repugnant to our finer feelings, but as they are stern realities, and there is no getting beyond them, it is only right that we should be made familiar with them. It may be all very well to be possessed with the comfortable feeling that "where ignorance is bliss 'tis folly to be wise." This may do so long as there is nothing of any particular value at stake; but when human life and health are in the balance we cannot know too much of the many untoward influences which militate against their fullest vigor; and it is only by laying bare plain facts regarding the predisposing and exciting causes of diseases that we can expect public opinion to be educated along these lines, or hope for their ultimate eradication through combined and intelligent effort.

Although the great majority of us have been in the habit, all our lives, of eating with a relish our beefsteak, our pork-chop, or perhaps some daintily spiced sausage meat, yet the minority only may have any conception that our meat animals are capable of being the bearers of a number of diseases, some of which are of a fatal character to the human family.

Let us consider one or two of the more important, and, as I have previously suggested, throw aside sentiment for the time being and view them from a matter-of-fact stand-point—the stand-point of public health.

Swine, which furnish a large proportion of our meat-supply, besides being subject to numerous other diseases, are capable of harboring, and, in fact, do harbor, several parasites which are transmitted to human beings through consumption of their flesh in an imperfectly cooked condition, which often produce serious consequences.

The muscles or flesh of this valuable food-animal furnish the habitat for an important parasite in a partially developed state, which, when partaken of with the flesh which has not undergone sufficient cooking to destroy it, comes to maturity in the human alimentary canal, and there produces what is technically known as "tæniasis," but which in plain, ordinary language means nothing more nor less than tapeworm disease.

The hog is responsible, also, for affording asylum to another parasite, which, although about the smallest of the nematode, or round worms, is mighty enough in its effects to cause embargoes to be at times placed by foreign governments upon our export hog products.

I refer here to the "trichina spiralis," which infests the muscular tissues of the hog, and when the flesh is eaten without undergoing sufficient heat the consumer becomes affected with that often fatal disease known as "trichinosis," or flesh-worm disease.

Our beef animals, too, are responsible for the transmission of tæniasis to the human consumer in a similar way to that of the hog. Such beef is popularly known as "measly beef," and, in the case of swine, "measly pork."

It may be a revelation to some to know that consumption is as prevalent relatively in cattle as it is among the human family. The germ or bacterium which produces the disease in the one case is similar to that which causes it in the other—in fact, consumption is considered to be intercommunicable.

Many of us view this subject lightly, not having devoted to it much thought; nevertheless, the question of how to prevent consumption is one which at the present time is occupying the serious attention of medical and veterinary sanitary scientists all over this country, and, in fact, throughout the entire civilized world. Only within the last month there was held in the city of London, England, a statutory general meeting of the National Association for the Prevention of Consumption and other Forms of Tuberculosis, presided over by the Earl of Derby, and at which a large number of the most eminent sanitarians of Great Britain were in attendance. The report of the Organizing Committee, which was read by the secretary, stated that they sought to enlist sympathy and coöperation by (1) the education of public opinion and the stimulation of individual initiative; (2) the influencing of Parliament, county councils, boards of guardians, chambers of agriculture, and other public authorities on matters relating to the prevention of tuberculosis; (3) the establishment throughout the kingdom of local branches of the association to be affiliated with the central office.

In the education of public opinion they suggested the circulation of pamphlets and leaflets setting forth in plain language the results of scientific investigation, public lectures by men approved by the council, addresses at congresses and other public gatherings, coöperation with other societies having for their object the promotion of public health and the establishment of open-air sanatoria for tuberculous patients, etc. I have referred to this report to show the importance that is attached in other countries to the prevention and eradication of this "great white plague." I was much struck, also, with the similarity in the objects and the method sought to enlist sympathy and coöperation in that powerful British association and in our own, as can be seen by referring to the charter of this organization.

Going back to our beef animals, we would say that in the consumption of tuberculous flesh there is danger more or less to human life, and we do not believe that anyone would relish a steak from a tuberculous animal if they were aware of the fact.

Meat although not actually diseased itself, or from an animal that may have suffered or perhaps died from some communicable disease, may yet be unfit for human consumption on account of emaciation depriving it of proper nutritive qualities, and there are certain periods in an animal's life when, although it may not be suffering from actual disease, its flesh is rendered repulsive as an article of human food.

Such, then, are a few of the conditions of our pork and beef animals through which consumers of their flesh may suffer, either from being actually diseased or from want of the proper nourishing properties of the meat.

But, besides the meat, the purity and wholesomeness of the milk-supply of our city populations is no less important a necessity.

I will not trouble you with details relative to the various causes which render milk either nocuous or innutritious, but will refer to but one condition, on account of which this "great uncooked food" becomes extremely dangerous to life, and especially that of children —I refer to tubercular milk or milk from consumptive cows.

Extensive statistics go to show that increase in the number of cases of consumption of the bowels of children (tabes mesenterica) is coincident with the time at which they are changed from their mother's milk to that of the cow. It is not the case that the bacillus of tuberculosis is found in the milk of every consumptive cow, but when the milk-vessel, the udder or bag, is affected with the disease the milk from that animal is extremely dangerous; and where a herd of dairy cattle is kept and consumption exists among them, it is possible, if not probable, that one of them may have tuberculosis of the udder, and by mixing the milk of this one cow with that of the others the whole of the supply may thereby be contaminated with tubercle bacilli.

(To be continued.)

AN EXPERIMENT IN THE TRANSMISSION OF SYPHILIS TO CALVES.[1]

By Mazyck P. Ravenel, M.D.,
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(*From the Laboratory of the State Live-stock Sanitary Board.*)

THAT syphilis is a disease peculiar to man and incapable of transmission to the lower animals is generally accepted by the medical profession, and upon such firm ground does this opinion appear to stand that most text-books make the statement without going into the details of the experiments on which it is based. Apart from the scientific interest which the subject bears, there is a practical importance attaching to it which must hold our attention, owing to the fact that the opponents of vaccination against smallpox lay great stress on the alleged danger of transmitting syphilis by vaccination, some of them even going so far as to claim that syphilis and vaccinia are one and the same disease. The agitation against vaccination in our own city and State during the year just closed, and the assertions made by certain doctors before a legislative committee of the dangers involved in the practice, must be fresh in the minds of all. It was this agitation that suggested to Dr. Leonard Pearson and myself the advisability of repeating once more the attempt to produce syphilis in calves by inoculation from man.

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[1] Read before the Pathological Society of Philadelphia, February 8, 1900.

In looking over the record of experiments on this subject I have been unable to find any report of the successful inoculation of bovines, failure having resulted in every instance of which I have knowledge, though there are experimenters who have claimed success in inoculating rabbits, guinea-pigs, cats, dogs, horses, pigs, and monkeys—a fact which is somewhat significant.

The scope of this paper does not permit me to go into a critical review of past experiments, nor, indeed, do I think it necessary. I have been impressed, however, by the fact that several of those who have claimed success have employed material from soft chancres, while others have used tuberculous matter, as suggested by Striker, who examined the supposed syphilitic nodules induced by Hansell and also by Kaposi in regard to the same work.

The admirable work of Dr. Ernesto Duplan, done in the pathological laboratory of the University of Pennsylvania, and detailed in his graduation thesis (1884), deserves mention. He made seventy inoculations, using fifteen rabbits, five dogs, four guinea-pigs, and four apes, which he imported from Mexico himself for the purpose. His results were all negative, with the exception of two rabbits inoculated with pus from a soft chancre. In these an indurated lump formed at the point of inoculation, which opened spontaneously on the twelfth and thirteenth days respectively, discharging thick, cheesy pus. With this pus four rabbits were inoculated, one of which died of tuberculosis at the end of four weeks, the others showing no ill effects. Although he cites these two cases as examples of successful transmissions of syphilis to rabbits, I think it is clear that he was dealing with tuberculosis.

Among the lower animals there is only one disease known that bears any resemblance to syphilis—dourine or maladie du coit—sometimes called also syphilis of solipedes. This remarkable and interesting disease has been known for more than a hundred years, and is supposed by some to have had its origin in the coitus of syphilitic Arabs with she-asses. There is, however, absolutely no evidence of this, it being wholly theory, while on the contrary all attempts to produce dourine in mares and she-asses by infection with syphilitic virus have failed completely. Furthermore, the specifics against syphilis—mercury and iodide of potash—have no effect in dourine. The disease has been seen only twice in the United States, both times in imported stallions. It has been carefully studied in Europe, notably by the able veterinarians of the Alfort school, so that it is possible to affirm with certainty that dourine and syphilis are two entirely distinct diseases.

For our experiment two calves were selected, one a heifer, about eight months old, the other a bull, about fourteen months old, both in good condition, though the heifer was known to be tuberculous. Both had been on our premises and under observation for some months. The method of inoculation chosen was that practised by some of our best vaccine producers. The area selected was shaved, washed thoroughly with soap and water, and well rinsed with sterile water, after which a surface about the size of a silver half-dollar was scraped with a sharp scalpel until a slightly bloody serum began to exude. It was next scarified with the ordinary scarifier used in vaccination, in two directions at right angles to each other, and into this the syphilitic material was rubbed for not less than five minutes. A second scarification was then done, and the animals kept down until the surface had dried. The heifer (Ref. No. 26107) was inoculated in two places, on the inner side of the hind leg high up and on the abdomen just anterior to the udder, while the bull (Ref. No. 26130) was inoculated only on the inner side of the hind leg.

The material used was obtained through the kindness of a physician from a patient in the venereal ward of a hospital with which he is connected, and consisted of scrapings from a mucous patch on the lip and a sore about the genitals. The case was in the early secondary stage and the material taken at the commencement of treatment. It was collected at 11.30 A.M., and the inoculations made at 2 P.M. the same day.

On the next day the scarified areas were covered with a thin scab, and were surrounded by a narrow zone of slight redness, which disappeared during the next thirty-six hours. By the fifth day the scabs had loosened at the edges and dropped off on the ninth day. At no time was there any appreciable amount of inflammation or swelling, nor did the animals show any discomfort. The temperatures were taken soon after the inoculation, and twice daily for fifteen days, as given below:

RECORD OF TEMPERATURE.

CALF No. 26107.			CALF No. 26130.		
Date.	A. M.	P. M.	Date.	A. M.	P. M.
August 12 . . .	. . . .	102.6	August 12 . . .	. . . .	103.6
“ 13 . . .	102.2	104.2	“ 13 . . .	102.6	104.2
“ 14 . . .	102	102.3	“ 14 . . .	102.8	102.2
“ 15 . . .	102.4	102.6	“ 15 . . .	101.6	101
“ 16 . . .	102	102	“ 16 . . .	102.4	102
“ 17 . . .	101	102	“ 17 . . .	101.2	102.4
“ 18 . . .	101.2	101 2	“ 18 . . .	102	101.4
“ 19 . . .	101.3	102	“ 19 . . .	101.2	101.2
“ 20 . . .	101	102	“ 20 . . .	102.2	102.2
“ 21 . . .	101.2	102	“ 21 . . .	102	102
“ 22 . . .	102	102	“ 22 . . .	102	102.2
“ 23 . . .	102	102	“ 23 . . .	101.8	102
“ 24 . . .	101.4	101.8	“ 24 . . .	102	102
“ 25 . . .	101.6	102	“ 25 . . .	101.4	101.8
“ 26 . . .	102	101.8	“ 26 . . .	101.6	101.4
“ 27 . . .	102	102	“ 27 . . .	101.6	102

Calf No. 26107 was kept under observation until October 5th, fifty-four days after inoculation, when it was killed. It was impossible to detect the points of inoculation, nor could any lesions be found in any part of the body which were in the least suggestive of syphilis. The animal was known to have tuberculosis, which the examination showed to be very limited, confined to a few nodules in the lung. A portion of the sciatic nerve, taken from the region of inoculation, and a section of the dorsal spinal cord were sent to the Pepper Clinical Laboratory, where they were examined by Dr. McCarthy, whose report is as follows:

“The examination of the central nervous system and the peripheral nerves of the calf No. 26107, inoculated with syphilis and sent to me by you, revealed no changes either by the Marchi osmic acid method, the Nissl cell stain, or the Weigert sheath stain. The peripheral nerves teased and stained by osmic acid were likewise normal. D. J. McCARTHY.”

Calf No. 26130 was kept under observation until December 28th, one hundred and thirty-eight days, when it was killed. A few days before it had been tested with tuberculin and found to react. In this animal, as in the other, it was impossible to detect the point of inoculation, nor could any change in the skin be detected after removal. The organs were entirely normal with the exception of one lung, which contained a cheesy tubercular nodule three-fourths of an inch in diameter. Dr. McCarthy's report on the nerves and spinal cord is as follows:

"An examination of the central nervous system and peripheral nerves of calf No. 26130, inoculated with syphilis, gave negative results with the fresh osmic acid method, Marchi method, Weigert and Nissl stains. The specimens were perfectly normal.

"D. J. McCarthy."

The result of these two experiments, which were conducted with the greatest care, has been confirmatory of the work of those observers who, like Neumann, have failed in all attempts to transmit syphilis to the lower animals, and who hold it to be impossible.

I apprehend that some may object to the value of these experiments, on the ground that the animals were both tuberculous, a fact which did not escape my attention. In man the two diseases are not rarely met with coexisting in the same individual, and the presence of tuberculosis appears to make the patient more susceptible to syphilis. Says Landouzy: "In this association syphilis finds the subject without resistance, and, furthermore, affording no hold to specific medication . . . The worst morbid association that I know is the union of a pulmonary tuberculosis with a commencing syphilis" (*Congrès pour l'étude de la Tuberculose*, 1891).

In closing, I wish to make acknowledgment of the efficient services of my assistant, Mr. S. H. Gilliland, in the carrying out of this experiment, and of my indebtedness to Dr. D. J. McCarthy for his examination of the nerves and spinal cord.

STATE WORK WITH INFECTIOUS DISEASES OF ANIMALS.[1]

By M. H. Reynolds, M.D., V.M.,
ST. ANTHONY PARK, MINN.

(Continued from page 157, March, 1900.)

Hog-cholera. I have been somewhat disappointed with the progress we have made in the hog-cholera work during 1899, and I feel that we are at a critical point in this work. Very satisfactory progress was made in 1897 and 1898, as I will soon show in a brief table. The difficulty this year has been to secure prompt reports of outbreaks, and this difficulty is due to an outcropping of natural human selfishness. Unless the State Board can secure prompt reports, the work of further reducing the infected area and financial losses will be greatly hindered.

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[1] Presented at the annual meeting of the State Agricultural Society, at St. Paul, January 10 and 11, 1900.

During the past quarter thirty-nine townships in nineteen counties have been reported as infected with hog-cholera.

The following table gives a reasonably accurate survey of the situation during 1897, 1898, and 1899. The number of townships and financial losses for 1898 and 1899 should probably be somewhat larger. Please bear in mind that this work did not begin until 1897, and that forty-three counties were then infected. It is not difficult to check a small outbreak of hog-cholera and completely eradicate the disease, but forty-three infected counties to deal with in a State as large as Minnesota is a very different proposition.

Year.	Counties infected.	Townships infected.	Loss.
1896	43	—	$1,000,000
1897	41	254	487,500
1898	32	93	325,000
1899	32	75	252,000

I wish to explain again that this table is not presented as being absolutely accurate, but it is as accurate as existing information allows. The relative proportion of losses and townships infected is probably very nearly correct. Other natural conditions have had something to do with that decrease in the infected area and the financial losses. It is difficult to estimate just what proportion should be credited to the work of the State Board and what to natural conditions, but it is evident that these natural conditions do not alone account for the improved situation. The following is submitted as showing the needs of general information concerning hog-cholera and the necessity of vigorous work. Hog-cholera appeared in a certain township of Stearns County during the early summer. The township chairman called on the owner soon afterward and quarantined the hogs and pens, giving instructions as to what should be done. The chairman considered this owner a good citizen, and did not watch things as closely as he would otherwise have done. We have since learned that this farmer lost quite a lot of hogs. They were left unburied, although the law expressly orders to the contrary. The outbreak in this township has since been around this man's farm in all directions, and has apparently been spread largely by dogs.

There are two adjoining townships in one of our most southern counties where hog-cholera appeared last June. The chairman did nothing to check its spread, and the outbreak became very general. They did not even obey the most explicit directions of the law. Three adjoining townships received infections from these two, but infected places were quarantined, and in no case did the disease spread beyond the first quarantine. The two generally infected townships reaped a disastrous harvest. This would not be so bad if they had not been a constant source of danger for adjoining townships where the chairmen and farmers were law-abiding.

An interesting situation developed in connection with an outbreak in Polk and Red Lake Counties. During the course of our work last season we learned that hogs had died on a certain farm during the previous fall. Dead hogs were thrown into Red Lake River in the northern part of Gentilly Township. Red Lake River is reported as being a very sluggish stream, and in the early spring outbreaks appeared on a series of farms along this river, down stream. The disease was then carried from these farms to the surrounding country, and a very serious outbreak of hog-cholera was the result; and yet intelligent people say that hog-cholera spreads in the air and in a great variety of mysterious ways, and hog-cholera is just hog-cholera, and there is no use in attempting to do anything with it. The outbreak just referred to had its plain origin when the careless farmer threw dead hogs into the sluggish stream.

It is very probable that there have been few outbreaks of hog-cholera in Minnesota where the method of spread was not simple and easily understood if we could only get the facts.

Mr. ———, of Greenville Township, Dakota County, assisted a friend to load a car of hogs, and during this work he was in the stock-car. After finishing the work he went home and took care of his own hogs. In about two weeks cholera broke out in his herd, with no other cases in the vicinity, and yet he only walked around in the stock-car and some railroad shipping pens.

Mr. G. went to Shakopee and attended a street fair. Bought seven young pigs. Took them home. In a few days these pigs were sick, some of them dying. In about two weeks the rest of his hogs were taken sick, and they all died. A neighbor helped Mr. G. move the pigs over from the wagon in which they were brought to the sale into Mr. G.'s wagon. He then went home, and in about two weeks his hogs were dying with cholera.

Not very long ago a farmer living near Morgan, Redwood County, shipped in some hogs from Olmsted County, and, by the way, contrary to the regulations of the State Board of Health.

These imported hogs infected those previously on the place, and resulted in an outbreak of cholera.

A farmer living near Sleepy Eye sold some hogs to a buyer at that place. The hogs were placed in the shipping pens, and, contrary to the regulations of the State Board of Health, sold them to another, farmer who took them back to the country. These hogs were free from the disease when the first sale was made. No cholera had existed in the neighborhood from which they came. After the usual period of about two weeks they became sick and were dying with cholera. Result: another outbreak of cholera. It is very evident that these hogs were infected in the railroad shipping pens.

Suppose a case: Hog-cholera appears in a previously uninfected district. The outbreak is confined to two or three farms. In a reasonably intelligent and law-abiding neighborhood this outbreak can be quarantined with reasonable certainty of complete success, providing the chairmen posts quarantine placards, visits the neighbors, gives all the information at hand concerning the nature of the disease, how it spreads, etc., and urges owners whose hogs are not infected to post quarantine cards, etc.

But suppose the chairman takes no interest; suppose the owner leaves carcasses of hogs unburied after a representative of the State Board of Health has left. Dogs are numerous. Neighbors refuse to accept suggestions concerning dogs and other sources of spread; visitors pay no attention to the notice cards—quarantine is a failure. The disease spreads rapidly, not necessarily because the theory of quarantine is wrong, but merely because of the listlessness and general uselessness of the chairman and the stubbornness and selfishness of the owner and the indifference of the neighbors. "Render to Cæsar the things that are Cæsar's."

That it is possible to maintain successful farm quarantine for hog-cholera has been demonstrated over and over again during the past three years. Whether individual farm quarantine is successful or not depends largely upon the township supervisors and the individual farmers. The mere fact that individual farm quarantine has not been entirely successful in many townships does not contradict this statement. The thing for the farmers of Minnesota to do is to let go of this idea of finding a medical cure for hog-cholera and undertake an intelligent prevention. It is probable that a satisfactory serum for vaccination will be developed in the near future, but that alone will not solve the problem by any means or do away with the necessity of sanitary measures.

The following extracts from the "Circular of Information for Local Health Officers," together with the "Hog-cholera" quarantine and the owners' "notice" cards, will give some information concerning the present methods of dealing with this disease.

When hogs begin to sicken and die during the prevalence of hog-cholera the disease should be reported to the local health officer or chairman of the town board, and quarantine should be established at once. It is a simple matter to release quarantine, and should it be proven that the disease is not hog-cholera, no harm has been done by such quarantine.

All health officers and acting health officers are therefore instructed to see that suspicious outbreaks of disease among hogs are properly quarantined.

The health officer should explain to the owner or keeper the nature and conditions of quarantine, and see that the conditions are rigidly enforced until quarantine is released.

Hog-cholera is often spread by water in small streams and lakes, and for this reason hogs must not be buried near any such lake or water-course.

Dogs and poultry should not be allowed access to yards or pens where hogs are confined during the hog-cholera season, and pigeons and crows should be shot or otherwise frightened away because of danger that they may spread the disease.

The health officer or inspector should always wear overalls and overshoes or rubbers when going among diseased hogs. These overalls and overshoes or rubbers should always be kept at a safe distance from healthy hogs and from other agents which might convey the disease.

Quarantine cards must not be removed until six months after the last hog has died or recovered, and the premises disinfected in a way satisfactory to the local board of health.

Farmers should be urged to dispose of marketable hogs for slaughter as soon as suspected hog-cholera appears in a neighborhood.

Neighbors on whose farms the disease has not yet appeared should never be allowed to help haul the hogs from infected farms, as there is great danger that the disease will be spread from farm to farm by such action.

Tuberculosis. I wish to make a special effort at this meeting to interest members of this association in the subject of "Bovine Tuberculosis," particularly as affecting the cattle-breeding interests. The problem is a very large one and extremely difficult. There is no possibility of question but that tuberculosis prevails among pure bred cattle. This needs no further demonstration; neither is there any question as to the reliability of tuberculin as a means of diagnosis. This has also been demonstrated beyond possibility of reasonable question. It is practically settled that the germ causing bovine tuberculosis and the germ causing human tuberculosis are identical as to species and differ only as modified by slightly different environments in different animal bodies. These and a host of other questions need not trouble us. The difficult question is, What to do about it? What steps to take and how to take them in order that the spread of tuberculosis among pure bred cattle can be lessened or controlled without at the same time causing the breeder great financial losses and endangering the cattle-breeding interests of the State, which it is our business to foster rather than injure. I will have some suggestions to make later concerning this problem.

(To be continued.)

OPHTHALMIA.[1]

By G. Ed. Leech, M.D.C.,
MILWAUKEE, WIS.

(Concluded from page 214.)

Sympathetic Ophthalmia (in *Diseases of the Eye*, by Norris and Oliver). This case is reported by Deutchmann, and is of more than usual interest, because the man died of carcinoma of the stomach. The change found in the sympathizing eye, in the opinion of Deutchmann, must have been the result of a process that necessarily was limited to the visual apparatus from beginning to end.

A man, aged thirty years, had undergone an unsuccessful operation upon his right eye six months before; inflammation associated with great pain followed, and sight was ultimately lost. The patient when first seen presented the following conditions: In the right eye were phthisis bulbi and occlusion of the pupil; the cornea was clear, though there was a scar at the limbus marking the point where the incision was made at the time of the operation; slight ciliary injections were also present, and the eye was soft and extremely sensitive to touch or pressure. The other eye was sound so far as external appearance and vision were concerned. The ophthalmoscope, however, showed a red papilla with indistinct edges, the vessels being dilated and the surrounding retina cloudy. The patient refused absolutely to submit to an operation, so he was put through an inunction of sweating and iodide of potassium. It may be well to add that there was no evidence of any syphilis, though the man was very pale and had a cachectic appearance. He had no fever, and complained of nothing but a trouble in his stomach. The treatment with the above formula proved fruitless, the primarily affected eye grew less irritable, and gradually lost its sensitiveness to pressure, while the neuro-retinitis in the other eye increased, and vision soon began to fail, followed by the appearance of fine opacities in the vitreous body. The patient was lost sight of, and when next seen the vision in his good eye was 1/xv, and there was present pronounced neuro-retinitis, opacities in the vitreous body, and beginning ciliary injection; the other eye showed no further change. The cachectic condition of the patient seemed worse, and he presented the appearance of one afflicted with carcinoma. He still refused to allow an enucleation, so he was put under active treatment, with a view to bettering the condition of the other eye, the eye in which the sympathetic ophthalmia was present. Things continued to go from bad to worse, posterior synechia appeared, and the vitreous body became so cloudy that it was not possible to see the fundus. The vision sank to recognizing the movement of the hand, the general condition grew worse until there was no longer any doubt of the existence of carcinoma of the stomach. He died a few days later.

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[1] Read before a meeting of the Wisconsin Society of Veterinary Graduates, March 14, 1900.

An autopsy was obtained and both orbits, the eyeballs, the optic nerves and the chiasms were secured for examination. It may be mentioned that at the autopsy the meninges showed nothing abnormal, the right eye was slightly atrophic, the optic nerve entrance decidedly spread out and infiltrated throughout with round cells. The trunk of the ciliary nerves at this point presented nothing abnormal; sometimes here and there in the sheath a round cell would be noticed; the tissue of the optic nerve itself was abundantly infiltrated with round cells, especially in the pial septa. The walls of the bloodvessels in the papilla were richly infiltrated with round cells. The retina, especially in the nerve-fibre layer, was markedly infiltrated, and at points was separated from the choroid by an exudate. The vessels of the retina participated to the same extent in the process. The retina in the vicinity of the ora serrata did not show much infiltration, but was simply atrophic. The choroid was atrophic very generally, and the pigment epithelium at points was detached and partly atrophied. Both the retinal infiltration and the choroidal infiltration were less pronounced near the ciliary region. The vitreous was detached anteriorly and posteriorly, and transformed into a fine fibrous tissue.

The sclera was slightly infiltrated at the posterior pole; infiltration of the sclera as well as the sub-conjunctival tissue was noticed at the limbus of the cornea. The cornea was also infiltrated, and at its upper border was to be seen a scar, along the course of which cell-infiltration was very noticeable. The iris and ciliary body showed atrophy of the pigment elements, posterior synechiæ was present, the synechiæ consisting of nucleated fibrous tissue containing round cells, particles of pigment and endothelial cells, forming a tissue which completely closed the pupillary opening.

The anterior chamber contained an exudate that consisted of round cells and fibrin ; especially noteworthy was an anterior synechia unassociated with a corneal scar ; there was hardly more than a rudiment of the lens remaining.

As regards the condition of the second eye, the optic nerve where it passed into the eyeball was richly infiltrated with round cells, and this was particularly noticeable in the pial septa. The ciliary nerves at this point were intact, except that here and there a round cell could be noticed. The papillæ was very much swollen and infiltrated with round cells, and the sheaths of the central vessels participated in this process. The retina, especially in the fibre layer and as far forward as the ora serrata, was the seat of round-cell infiltrations, the infiltration showing even to some extent in the ora serrata. The choroid was richly infiltrated, the cells sometimes occurring in little groups or heaps, and sometimes being uniformly distributed throughout the tissue. The pigment epithelium was loosened. The round-cell infiltration of the choroid appeared to be less pronounced a short distance forward from the equator ; but beyond this, up to the ciliary body and in the latter, the cell infiltration was abundant. The sclera in general was intact, though the walls of the small bloodvessels penetrating the sclera were infiltrated.

The vitreous body was somewhat shrivelled and at some points was detached from the retina. Throughout the vitreous body were to be seen numerous cells, partly small round cells, partly large cells, with vacuoles and containing several nuclei. The posterior chamber contained coagulated fibrin mixed with round cells. The lens was intact, except that there was an abundant pigment deposit at the anterior capsule, and in addition to this an exudate that soldered the anterior capsule to the posterior surface of the lens. The ciliary body was densely infiltrated with round cells. The anterior chamber contained a fibrinous exudate rich in cells. The iris was infiltrated throughout with round cells, and the cornea showed a slight infiltration at the scleral border, as did also the sub-conjunctival tissue at this point. The external sheath of the optic nerve of the primarily affected eye all the way up to the chiasm was only moderately affected. The inner sheath, however, was considerably infiltrated with round cells, the infiltration being here and there quite dense and at other points more diffuse. The cell infiltration was pronounced in the pial septa. At the chiasm the inner sheath of the nerve was markedly infiltrated. The pia mater was infiltrated only in the immediate vicinity of the chiasm; otherwise it was perfectly normal.

The other optic nerve showed also pronounced round-cell infiltration of the inner sheath at the chiasm. This cell infiltration continued with variable intensity all the way down to the second eye.

Both orbits were normal, and there was here no suggestion of involvement on the part of nerves, muscles, or bloodvessels. The ciliary nerves wherever met with in the sections were perfectly normal. The brain and its membranes were normal. Microorganisms were found in both eyes, and also in the optic nerves. The organisms had somewhat the appearance of gonococci, and in the primarily affected eye were observed to be most numerous in the ciliary body, iris, and choroid, especially in that part of the choroid near the papilla. They were also to be seen in the retina, in the papilla, and about the central vessels. In the optic nerve organisms were found in the nerve-trunk and in the walls of the smaller bloodvessels which pass through the inner sheath of the nerve. No organisms were found in the outer sheath of the nerve. The condition was the same in both optic nerves and in the chiasm. Some few organisms were found in the pia mater in the immediate vicinity of the chiasm. In the second eye microörganisms were found to be most abundant in the posterior part of the eye, just as was the case with the first eye. There were no organisms in the orbits.

It will be remembered that neuritis optica existed for some time in the second eye before there was disturbance of vision. Deutschmann thought that the neuritis was produced by the chemical and metabolic products that preceded the migration of the organism, and that it was only where the latter had traversed the optic nerves and passed into the second eye that the disease spread with rapidity and with its usual destructiveness. He regarded the optic nerves and chiasm as the route followed by the organisms, and believed that the pial sheath of the nerve and the nerve-trunk were the parts preferably attacked, and he concluded by stating his position again with respect to the pathogenesis of sympathetic ophthalmia—a position which is well known.

Such a case is of undoubted value, for if a general infection can be absolutely excluded we are not far from the solution of this problem. The observation, however, is an isolated one, and, while we cannot but appreciate its value, it will never be looked upon as conclusive so long as the experimental side of the question remains so one-sided.

It may be added that a general infection cannot possibly be excluded without a bacteriological examination of the blood and other organs, as such general infection, especially with streptococci, is not infrequent as a terminal event in various chronic diseases, including cancer of the stomach. The many negative results do not disprove the bacteriological origin of sympathetic ophthalmia, but before regarding such a theory as proven the specific organisms must be identified, and especially should this be the case with an infection like sympathetic ophthalmia, a disease the pathogenesis of which really does admit of more than one reasonable interpretation.

STOMACH-WORM (*S. CONTORTUS*, RUD.) IN LAMBS.

BY A. G. HOPKINS, D.V.M., B. AGR.,
ASSISTANT IN ANIMAL HUSBANDRY, AGRICULTURAL EXPERIMENT STATION, UNIVERSITY OF WISCONSIN.

IN sheep-raising districts the stomach-worm (*S. contortus*, Rud.) has proved a serious hinderance to successful sheep husbandry. Numerous breeders have had losses of lambs during the past few summers with mortality rates in their flocks of from 15 to 60 per cent. Such being the case, an experiment was conducted at this station to determine the effectiveness of one or two remedies. Benzine had been highly recommended, so this medicament was tried as was creolin (Merck-Pearson). An experiment was under way at the station to determine the relative merits of various grains for feeding, so that the frequent weighings at regular intervals assisted in the diagnosis. Post-mortems were also held, and the stomach-worm found in the abomasum. In one case a tapeworm (*T. expansa*, Rud.) sixteen feet in length was found in the intestines; in one other evidences of nodular disease (*Esophagostoma columbiana*, Curtice) were quite plain. Outside of these two cases the *S. contortus* seemed to be the causative factor of the rapid emaciation and loss of weight, dulness, hydræmia, anorexia, pyrexia, pica, coughing, and frequent micturition, during which large quantities of colorless urine were passed. Intense thirst was shown, lambs affected rushing to the water-trough immediately on being brought in from the pasture. Diarrhœa was not a symptom in the station flock, but has been reported in other flocks quite often.

A tonic powder of ferrisulph., nut areca, nux vomica, and red gentian was administered with practically no results. The lambs were then divided into two lots (I. and II.). Lot I. was given benzine, ʒij, in new milk, ℥ij, on three successive mornings. Lot II. was given creolin, ʒj, in new milk, ℥ij, also on three successive mornings, the medicine being administered fasting. On the fourth morning ol. lini (raw), ℥iij, was administered to each lamb. The next weighing (some ten days later, taking place every two weeks) showed gains of from two to five pounds, which gains were continued, judged by subsequent weighings. Previous to the treatment the lambs were losing weight or else standing still. The medicine was administered as a drench by the station shepherd. Great care is necessary in drenching lambs, and unless in experienced hands fatalities often occur. To the novice a safe method is recommended—namely, a piece of rubber tubing and funnel. The tubing is slowly introduced into the œsophagus and the medicine put into the tubing *via* the funnel. The treatment was given early in September, which is quite late in the season. Prophylaxis, by administering the aforesaid remedy to all lambs in the flock in July or August, will afford the most satisfactory method of controlling this very serious scourge. Benzine (gasoline is said to be equally effective) is probably the better remedy, owing to its cheapness and its palatability as compared with creolin. Worm powders are comparatively worthless after a certain stage. One farmer reports a loss of one hundred and eighty lambs out of a flock of four hundred, in spite of the use of one hundred pounds of some patent worm powder.

THE ACTION OF CERTAIN SOMNIFACIENTS ON THE HORSE.[1]

By E. Stanton Muir, Ph.G., V.M.D.,
PHILADELPHIA, PA.

(Concluded from page 198.)

The line of experiments with the next drug, Indian Cannabis, was extremely interesting, as there was a difference in its action on different animals. The preparation used was P. D. & Co.'s N. L., which is an assayed fluid extract and a very reliable preparation.

Experiment No. 8. The first animal used was a bay gelding, eight years old, fifteen and three-quarters hands high. Temperature 100.8° F., pulse 42, respirations 16 ; heart strong and regular ; general condition was poor. I gave him an intravenous injection of 12.5 c.c. of the normal liquid, undiluted, at 12.20 P.M. In a few moments he became very nervous. At 12.42 the pulse was almost imperceptible, respirations normal, and heart 36. At this time he received a second 12.5 c.c., when he became hypersensitive. If he was touched, however lightly, with a straw, he would become excited and resent it. At 12.50 sleepiness was marked, and the stupor continued without any other symptoms until 1.15, when I again injected 15 c.c. into the veins. At 1.25 the temperature dropped 0.2 of a degree, and he was sweating profusely over the whole body. At 2 he was standing, twitching, and jerking the head as if dreaming, was still sweating, and his temperature had dropped to 99° F. At 2.20 he began to awaken, and at 3.21 hyperæsthesia was pronounced, but when not annoyed was very sleepy, and his temperature had dropped to 96° F., the lowest point it reached. At 4.30 P.M. his temperature had risen to 97° F., and he was decidedly delirious, in which condition he continued until 10 P.M., when he was lying down eating hay, apparently none the worse for his experience. A fact noticed was: as the sweating increased the temperature fell, and when it ceased the heat of the body slowly rose to normal.

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[1] Read before the Pennsylvania State Veterinary Medical Association, March 7, 1900.

The *prominent symptoms* were pronounced sleepiness, sweating, fall of temperature, delirium, and hyperæsthesia.

EXPERIMENT No. 9. A small horse, almost a pony, fourteen hands high, weighing 575 pounds. Temperature, 98° F.; pulse, full and strong; respirations 12; heart 42 and regular; condition fair. At 11.35 A.M. gave him an intravenous injection of 15 c.c. of N. L. Indian Cannabis, undiluted. In two minutes he stopped eating and became slightly delirious. At 11.45 the muscular system began to relax, the penis was protruded, and he was standing braced against the side of the stall, sleeping soundly. At 12.10 he fell down, and continued to sleep soundly until 6 o'clock the next morning, a period of eighteen hours, with the exception that at 2 P.M. he arose and immediately lay down and went into a sleep from which it was impossible to awaken him. There was not the slightest sweating, but his temperature went down to 92.5° F. up to 4.50 P.M., after which it slowly rose, and at 11.50 P.M. was 97.4° F. The pulse became very slow and shallow, respirations became irregular, and the heart dropped to 30 during the experiment.

The only *prominent symptoms* were sleep and the drop in temperature. The next morning he ate his feed and hay, apparently benefited by his sleep.

To those of you who have read Dr. H. C. Wood's description of his personal experience with Indian Cannabis, will, after you have heard the result of the next experiments, conclude as I did, that the action of this drug is the same on the horse as it is on man. The action in these three experiments was that of a deliriafacient, while the narcotic action was *nil* or very slight.

EXPERIMENT No. 10. Gray gelding, eight years old, fifteen and one-half hands high, weighing 800 pounds. Pulse full and normal, respiration 7, heart 52 and fairly strong; temperature normal; general condition poor. At 2.55 gave an intravenous injection of 30 c.c. of the N. L. Indian Cannabis, and in five minutes he was swaying from side to side. At 3.15 he was standing quiet, but would not allow anyone to take his temperature, becoming very violent, trying to kick, bite, or strike when approached, and was snorting constantly up to 4.30, after which the symptoms gradually abated. He remained irritable, however, until the next morning.

The *prominent symptoms* were a slight sleepiness and muscular weakness at first, and shortly becoming very irritable, but no diaphoresis.

EXPERIMENT No. 11 showed a still more violent action from the same amount of the drug administered in the same manner to a larger horse and one that was in good condition. Gray gelding, twelve years old, sixteen and a quarter hands high, weighing over 1000 pounds. Temperature 99.8° F., pulse full and regular, respirations 10, heart 38, regular and strong. At 11.35 A.M. 30 c.c. were thrown into the vein, and in six minutes muscular twitchings started, and he became extremely hypersensitive. At 11.50 he was sweating profusely, and was snorting and too irritable to approach. At 1 the muscular symptoms had abated somewhat; he was constantly moving from one side of the stall to the other, and was irritable and excited. At this time the respirations became labored and even stertorous; the mucous membranes were anæmic, but it was impossible to make close examinations. At 2 P.M. he was still very delirious, and the sweat was drying up. At 4 P.M. a secondary sweating started, but did not last long. He continued to be irritable and slightly delirious until 11.50 P.M., when his condition became more normal. The next morning there were no symptoms to show that he had undergone such an experience.

The *prominent symptoms* were hyperæsthesia, sweating, irritability.

All the former experiments being performed on horses that were standing tied in open stalls I decided to try the next on a horse loose in a box-stall. The stall was 12 x 12 feet.

EXPERIMENT No. 12. Gray gelding, sixteen and a half hands high, weighing 1050 pounds and in very good condition. Temperature 100.8° F., pulse full and regular, respirations normal, and heart regular and strong. I injected 45 c.c. (f℥jss) of the normal liquid into the jugular at 11.22 A.M., and had an experience that is vivid to me to this day. He became restless in two minutes, and in three minutes was rearing, kicking, and snorting like a mad horse. At 11.30 he was sweating profusely and running along the wall always on one side of the stall, same as does a lion in a cage before feeding-time. At 11.45 the steam was coming from him in clouds, and the sweat was running from his belly in a stream. He was too violent to approach—in fact, we dare not open the door of the stall, or he would come at us in a manner not pleasant. At 12 noon he seemed oblivious to pain, as his face was badly cut and bleeding by contact with the wall, still he continued running back and forward as before. There was some cob-corn in the feed-box, and he would take a mouthful and not appear to know that he was chewing it. At 2.50 P.M. he was injuring himself so badly that he was lassoed and tied to the sides of the stall. He would strike and bite at anyone who approached, and kick with both hind feet when attempts were made to take his temperature. I should like to have taken his temperature, as I am sure it would have been much below normal. From this time until 4.30 he continued in about the same condition, standing quiet, but becoming very violent when approached or annoyed. The sweat began to dry up at 4 P.M., but he continued to be more or less delirious and excitable, not eating anything until the next morning, and even all next day he was more nervous and excitable than he normally was.

The *prominent symptoms* were delirium, sweating, excitable condition.

EXPERIMENT No. 13. While the last experiment was going on I had a small horse in the next box-stall under the influence of the same drug, which showed a line of symptoms exactly opposite from those we have just read. This was on a small bay gelding, fourteen and a half hands high, weighing 650 pounds. Temperature 100° F., pulse 36 and weak, respirations normal, heart regular but not strong. At 11.33 I injected 30 c.c.; he became staggery in four minutes, and at 11.45 was standing sleeping, and the muscular system had begun to relax. At 11.47 he fell down on his knees, but recovered, and stood up until 12.03, when he fell down and went into a dead sleep. His temperature had now fallen to 99.4° F., but there was no sweating. At 12.30 he was still sleeping soundly, and the temperature was down to 97.4° F. At 1.30 he was sleeping soundly, no delirium, heart 56 and strong, respirations 12 and deep, pulse full, and temperature had fallen to 95° F. The lowest point recorded by the thermometer was 91.8° F. at 4.30, when he was still dead asleep. At 5 the temperature had risen to 93.5° F., and it continued to rise gradually until 6 the next morning, when he awoke, seeming all right except a slight muscular weakness.

The *prominent symptoms* were sleep, muscular relaxation, and fall in temperature.

EXPERIMENTS No. 14 and 15 were on a gray gelding and a bay gelding, the first being rendered exceedingly vicious by receiving 15 c.c. intravenously, so bad in fact that it was impossible to take his temperature; he did not sweat, nor did he show any signs of sleepiness. The bay gelding, about the same size and in the same condition as the former, was put sound asleep in twenty-three minutes' time with 25 c.c., from which he did not awaken for 3.25 hours, and then not the least excitable. After the acute symptoms here reported had passed off both animals gradually assumed their normal condition, apparently none the worse from their experience.

The *prominent symptoms* shown in all the experiments with Indian Cannabis were loss of temperature and hyperæsthesia. While in some we note extreme delirium and in others sleep pure and simple, some sweating profusely and others showing no diaphoretic action, sweating seems to have had nothing to do with the fall of temperature, for we note a fall in each case, and the greatest drop in the case which did not sweat at all. Action on the heart *nil*, or if any it has a stimulant action.

In making a summary of the whole line of experiments, we find that sulphate of morphia always produces more or less delirium in the horse, much more than that noticed on man, while we occasionally note delirium following the administration of large doses of Indian Cannabis. Pupils are widely dilated after large doses of morphia. Indian Cannabis has no action in this direction, chloral has no action on the pupil, and the only pronounced action noticed was somnolence, the apparent muscular weakness being no doubt secondary to the hypnotic action of the drug. In the case of morphia sulphate it will be noted that the mydriatic action came on only after large quantities of the drug had been administered and shortly after the nervous symptoms appeared. The toxic dose of fluid extract of Indian Cannabis must be very large, as 60 c.c. (f℥j⅓) given intravenously did not produce any alarming symptoms; small doses seem to stimulate some part of the sensory nervous system, while large doses paralyze. The similarity between the symptoms shown by Indian Cannabis in these experiments and those recorded by Dr. H. C. Wood in the description of his personal experience with the drug is noticeable: the muscular weakness, the seeming exaggeration of distances, sound sleep, local anæsthesia, and no bad after results. There is one other point on which I wish to speak and that is in reference to the largest amount of each of these drugs that can be given with safety. Of course, the size and condition of the horse have a great influence in this direction, but I infer from the experience here obtained that on an average-sized horse, say of 1100 pounds weight, in good condition, it would be safe to give of sulphate of morphia, 1 gramme (15½ grains), of fluid extract of Indian Cannabis, 50 c.c. (f℥j and fʒv), and of chloral 25 to 30 grammes (ʒvj to ℥j), dissolved in distilled water and injected slowly into the jugular. Do not understand me to mean that these are the proper therapeutic doses, but the limit so far as safety goes.

SELECTION.

COUNTRY ALMOST CLEARED OF SALABLE HORSES.

Horses of every class have increased from 125 to 150 per cent. in value in the last year, and judging from present indications they will continue to increase in value for the next two or three years. The same is true of mules, and despite the assertions of bicycle and automobile manufacturers, that these machines are displacing horses, the horse dealers, by statistics they have collected, show that they are not.

The facts in the matter were made public yesterday by dealers and agents who have returned to the city from the various parts of the country where they went to attend the annual spring sales of horses and mules. The causes they give for the increase in prices are as follows: First, the large purchases of horses and mules for use in the Philippines, Cuba, and Porto Rico by the United States Government. Second, the drain upon the supply caused by the large shipments to South Africa. Third, that horses are again popular among the richer class of persons in the country. Fourth, that there has been a great revival of interest in trotting and running racing.

The sales of horses this spring were double those of last May.

It was also said that the United States and England had purchased 187,500 horses and mules in Missouri, Texas, Kentucky, and Tennessee and the other horse-breeding States during the past three years, at an average price of $115 each. This would make a total of $21,462,500, the largest amount ever paid for horses and mules in the same time in the history of the country.

Except in thoroughbred running horses and animals that are not suitable for military purposes, these States have practically been cleaned out of salable animals.

The agents of the British Government are now operating in the Northwest, Maine, Vermont, and the other Eastern States. They have collected 2700 more horses, which will be shipped from New York and Montreal next month. For these animals it was said an average of $135 was paid, and about a thousand more will go from Baltimore soon, and the agents are trying to get as many as possible of the 35,000 horses still wanted, through Philadelphia dealers. More than $6,000,000 was offered for this number of animals, but the dealers say that horses have become so scarce that unless the British agents are willing to accept the less desirable range animals from Wyoming, Montana, and the other Western States, the demand cannot be filled.

English agents have shipped a total of 12,875 horses and mules from New Orleans, 4000 mules and horses from Charleston, 3500 from Galveston, and also several thousand from New York and Montreal. The exact number, however, cannot now be told, as statistics have not yet been made. The United States is still purchasing horses for the Philippines, which are being shipped by way of San Francisco and Vancouver to Manila. The sales to erstwhile bicycle enthusiasts are said to have doubled.

Two or three years ago cab, light draught, and ordinary carriage horses sold for from $40 to $100 each. Trotters, saddle horses, coach horses, and medium draught horses sold from $80 to $125. Thoroughbred trotters, saddle horses, and other fine animals, when they could be sold at all, brought only from $100 to $500, except in long pedigree strains. The prices are double and treble these figures to-day. Cab, carriage, light draught, saddle, and trotting horses have become scarce, because they are most needed for cavalry, mounted infantry, and field artillery. Coach and medium and heavy draught animals have been put into the artillery, army transportation, and in the hospital corps. The mules have gone into the army transportation service with the draught horses.

Most of those from Kentucky, Missouri, and Texas are now packing loads on their backs or dragging wagons through the mud in the Philippines or among the kopjes of South Africa.

The Shetland and other ponies and the small but wiry bronchos of some of the Western States seem to be the only class of animals that are worth only a little more than they were before the bicycle craze broke out and before the two wars were begun.

As nearly five years will be required to replace the horses that have already been sent to foreign countries, and even longer to replace those that are going during the next year, horse breeding has begun to boom. It is said that hundreds of thousands of dollars have been reinvested in stock farms during the present spring and that the breeders all over the country have resumed operations, which were stopped three years ago.—*Philadelphia Times.*

NOTES.

Meat-inspectors in the Bureau of Animal Industry, appointed under the Civil Service Commission, July, 1898, to June, 1899: Drs. Joseph O. Jacobs, S. Keane, California; Michael T. Naughton, Charles W. Johnson, Howard M. Batchelder, John A. Sloan, Illinois; Hugh M. Rowe, James L. Otterman, Iowa; Herbert Caldwell, Kentucky; M. Smith, Kansas; Albert Long, Maine; Alexander E. Wight, Massachusetts; George T. Irons, Michigan; Tait Butler, Mississippi; Robert A. Ramsey, Missouri; Thomas H. Ripley, Adolph J. Pistor, Richard W. Hewett, Archibald H. Wallace, New Jersey; Daniel G. Shumway, Monroe B. Miller, Joseph Thackaberry, New York; Harry M. Ball, Levi P. Beechy, John S. Grove, George W. Butler, Ohio; George Jobson, William G. Shaw, Eli L. Bertram, John H. McNeall, Pennsylvania; Joseph M. Good, Tennessee.

Dr. Harry A. Meisner, of Baltimore, Md., as forecasted in this JOURNAL, has been appointed State Veterinarian, succeeding Dr. A. W. Clement. Dr. Meisner is a graduate of the Veterinary Department, University of Pennsylvania, and has been in active practice in Baltimore for some ten years. He is well equipped for the position, and will no doubt render efficient service and bring his State in line with all others in sanitary control work.

REPORTS OF CASES.

PARTURIENT APOPLEXY UNDER SCHMIDT'S TREATMENT.

By J. H. Tennent, V.S.,
London, Ont.

The same instructions as to care and the same antiseptic precautions were used in each and every case unless otherwise specified.

Schmidt's treatment and our mode of applying it are as follows : Procure a clean vessel (a quart fruit sealer will do, and we prefer something of this kind, as it can be kept closed until the udder is prepared to receive it). Put into the vessel a quart of boiling water, and when cooled to a temperature of 100° or 101° F., add formalin, ʒj, and potassium iodide, ʒij ; shake gently, and it is ready for use.

Remove all the milk possible from the udder, then wash the udder and teats with an antiseptic wash ; also the instrument, which consists of an ordinary bulb enema syringe (human), to which is attached a teat siphon—a jeweller brazing a shoulder on to a siphon so as to fit the end of the syringe. The siphon is passed up the milk duct of the teat, and eight ounces of the solution of potassium iodide-formalin and water is injected into each quarter of the udder. In emptying the contents of the syringe into the gland air is admitted. I have seen no bad results, but would not advise too much air to be forced in, as it might be the means of infection of other germs.

If the patient is down and unable to rise, a clean cloth should be placed under the udder to keep it out of the stable litter.

Care. Place the animal in a position on the sternum, and endeavor to keep her so by bundles of straw, etc. ; clothe the body according to the season ; turn her from side to side every five or six hours. The udder is to be hand-rubbed or kneaded every hour, so as to ensure distribution throughout the entire gland. The solution is not to be milked out of the udder before eight or ten hours, when a second injection may be given if required.

Remove feces from the rectum. If urine is retained over twelve hours use the catheter. And in no case must medicines be administered by the mouth until the patient is well able to swallow. We give no medicine by the mouth unless the patient is able to stand.

Cold water may be given in small quantities frequently if the patient will drink. Food during convalescence consists of something light, nourishing, and easily digested. If constipation is present two or three days after the commencement of an attack an ordinary physic drench may be given.

The other medicinal treatment will be given with each case.

CASE I. *February* 28, 1899. Saw cow at 9.30 P.M. Down, unable to rise. Eyes amaurotic and all other symptoms well marked; pulse 96 and strong; temperature 101° F. Calved thirty-six hours previous. Extracted six quarts of blood from the jugular with difficulty. Gave aloes barb. ℥j, sod. chlor. ½ lb., spts. eth. nit. ℥ij, water 1 qt. Injected udder. Left eth. nit. to be given in ℥ij doses every five hours. Usual directions as to care, etc.

March 1st, 10 A.M. Still down; symptoms much better; bowels moving freely; urine high colored; pulse 98 and weaker; temperature 100° F. Two quarts from udder. Respirations normal. Injected udder. Left eth. nit., ℥ij, to be given as before, and same care, etc. 8 P.M. Had been up twice during the afternoon; had eaten a little and drank some water; found her ruminating slowly. Pulse very fast and weak. Temperature 102° F. Partial sweats on body; eyes discharging a watery fluid. Ordered three ounces of whiskey and left nux vomica to be given in ℥j doses, with the whiskey, every four hours.

2d, 10 A.M. Cow up and doing well, eating and drinking; pulse strong, 60; temperature 100.5° F.; not much milk from udder. Left pulv. nux vom., sod. bicarb., ginger, and gentian, ʒj each, to be given with one ounce of whiskey three times a day. Three days after the owner reported the cow doing well, but not as large a flow of milk as he expected.

CASE II. *March 7th*, 7 P.M. Patient down, but got up with difficulty. Paddling for a few moments, then went down again. Very fat; body covered with perspiration; respiration fast and difficult; pulse fast and weak; temperature 103.6° F.; bowels moved but little, and constipated since calving; voided a large amount of clear urine; calved twenty-four hours previous. Injected udder. Ordered ice to the head, left usual directions, but no medicine.

8th, 8.30 A.M. Patient down but got up and stood steady for a short time. Respirations stertorous; temperature 101° F.; pulse imperceptible; all other symptoms favorable. Injected udder and ordered ℥iij whiskey every three hours; same care, etc. 6.30 P.M. Gets up and down often. Respiration labored; pulse imperceptible; temperature 101° F.; bowels moving and urine voided.

Left pulv. nux vom., ʒjss ; whiskey, ℥ij, to be given every three hours ; same care, etc.

9th, 9 A.M. No perceptible change, and left same medicine as before. 5.30 P.M. Bowels moving ; urine voided ; drank one-half pail of water ; ate small bran mash ; pulse stronger, but still weak ; temperature 100° F. Prognosis favorable. Gave ol. lini, 1 pint ; ol. tereb., ℥j, and left same medicine except the whiskey, it to be given only one-half the quantity every four hours.

10th. Up and doing well. Left powder of sod. bicarb., ginger, and gentian, ʒj each, to be given three times a day.

CASE III. *April 4th,* 7.30 A.M. Jersey cow. Down and unable to rise. Symptoms well marked ; saliva flowing freely ; temperature 101.6° F. ; pulse 98 and strong ; cow in high condition and a very rich milker ; calved fourteen hours previous. Injected udder as usual. Left eth. nit., ℥ij doses, every four hours if patient was able to swallow. 7 P.M. Not any perceptible change ; breathing fast and difficult ; gave enema and left nux vom., ʒj doses, and rum, ℥iij, every four hours. Injected udder.

5th, 9 A.M. Still down ; head up ; temperature 103° F. ; pulse 80 and firm ; bowels moving freely ; ate bran mash and clover hay and drank water ; same treatment as night before. Injected udder again. 5 P.M. Still down, but all symptoms favorable ; did not inject udder ; gave same doses as before.

6th, 3 P.M. Still down ; temperature 100.2° F. ; pulse 76 and strong ; symptoms favorable ; left whiskey, ℥ij doses every six hours.

7th, 8 P.M. Up and doing nicely and made a good recovery.

CASE IV. Cow, very fat and heavy milker ; calved twenty-eight hours previous ; pulse 96 ; temperature 101° F.; paddling of hind legs ; went down while there, but got up again. Gave chlor. sod., 1 lb.; aloes barb., ʒjss ; liq. am. acet., ℥iij. Injected udder and left nux vom., ʒj dose to be given every four hours. Next day owner reported cow doing well.

CASE V. *May 31st,* 9 P.M. Pure bred Ayrshire, very fat and heavy milker ; calved twenty-eight hours previous ; down ; delirious ; pulse imperceptible ; temperature 102° F. ; cold sweats on body ; respirations difficult ; could not swallow a particle. Injected udder only ; usual care.

June 1st, 8 AM. Cow standing ten minutes when I got there ; bowels moving freely ; pulse 80 and firm ; temperature 100° F. ; respirations natural. Injected udder and prescribed a pint of ale and one drachm of nux vomica every four hours.

2*d*. Cow doing well; out grazing on the lawn, and made a rapid recovery.

CASE VI. *June 8th*, 11.30 A.M. Large cow, very fat and heavy milker, was down and comatose. Pulse imperceptible; temperature 97° F.; breathing fast and difficult; water running from eyes and saliva from mouth. Tympanites present. Injected udder only; strict orders as to care. 9 P.M Cow up; drank some water; bowels moving; symptoms favorable. Left liq. acet. am., ℥ij doses every six hours. Injected udder. Owner reported cow all right two days afterward.

CASE VII. *June 10th*, 7.30 A.M. Had calved forty-eight hours previous; placenta had been removed thirty-six hours after calving, when one pound of mag. sulph. was given. Fat, and medium milker; down, unable to rise; pulse 92; temperature 100.2° F.; respirations natural. Injected udder, and left liq. am. acet., ℥ij to be given eight hours afterward. 6.30 P.M. Still down; symptoms favorable. Injected udder, and left liq. am. acet., ℥ij doses to be given every six hours.

11*th*. Owner reported cow up and doing well. Gave six powders of sod. bicarb., gentian, ginger, and nux vom., ʒj each, a powder to be given three times a day.

CASE VIII. *June 10th*, 8 A.M. Calved forty hours; very fat and a heavy milker; delirious; down; pulse weak and fast; temperature 102° F.; breathing fast and sonorous. Injected udder and left usual directions. 11.30 A.M. No change in symptoms; only able to swallow, and gave ℥iij of whiskey. 6 P.M. Cow up; drank some water; symptoms very favorable. Injected udder and ordered whiskey to be given, to which owner objected, saying he had a pain killer of his own manufacture that cured all the ills of man and animal, to which we strongly objected, but he gave her teacupful doses every two hours, and in twenty-four hours the cow was dead.

CASE IX. *June 13th*, 7.30 A.M. Calved forty-eight hours previous; placenta was removed thirty-six hours after calving, when one pound mag. sulph. was given. Down; fat; fair milker; comatose; injected udder; usual directions; left no medicine. 6.30 P.M. Cow up; symptoms favorable; injected udder, etc.; left whiskey, ℥ij doses every six hours.

14*th*. Owner reported cow doing well; gave powders same as Case VII.

CASE X. *June 15th*, 8 A.M. Fat, heavy milking Holstein; was down, but got up with difficulty; paddled with hind legs, and fell again; head to one side and all the well-marked symptoms of the disease. The owner informed me that she had not yet calved, but he had been milking her for four days, as her udder was of a tremendous size, and milk was oozing out of the teats. Examined her per vagina, and found feet and nose in passage and fœtal membranes intact; broke them, and they seemed very tough, and with a little help she was delivered of a big, healthy calf. She was lying under a tree about two miles from the stable, and it rained for a couple of hours very hard. Injected udder; left usual directions; ordered body to be rubbed dry and blanketed and made as comfortable as circumstances would permit. Left liq. acet. am., ℥ij, to be given seven hours afterward. 6 P.M. Cow still down; head up; bowels moving freely; voided urine; pulse and temperature almost normal; drank one-half pail of water. Injected udder. Left liq. am. acet. and whiskey, each ℥ij, to be given every five hours. Afterbirth came away three hours after delivery of calf.

16*th*. Owner reported that the cow got up about four hours after the last injection, and during the night walked over to the stable, where he left her ruminatng quite contentedly; gave same powders as Cases I. and VII.

CASE XI. *June* 23*d*, 6 A.M. Calved twelve hours previous; fat and a heavy milker; down and unable to rise; weather very hot; placed her on a stone boat and brought to the stable. Respiration difficult; pulse weak and fast; temperature 97° F. Injected udder and left usual directions.

23*d*, 5 P.M. Cow up and all symptoms relieved; removed placenta and injected uterus with creolin solution; gave mag. sulph., 1 pound; aloes barb., ℥ij; whiskey, ℥ij. Injected udder. Left whiskey, ℥ij, nux vom., ʒj, to be given every six hours.

24*th*. Owner reported cow doing nicely; gave powders same as Cases I. and VII.

CASE XII. *July* 12*th*, 10 A.M. Calved twenty hours previous; fair condition, but a very heavy milker; down and unable to rise; comatose; bowels tympanitic; respirations labored; pulse imperceptible; temperature normal. Injected udder; left usual directions. 6 P.M. Up and doing well; symptoms favorable. Injected udder; left tr. nux vom., ʒj, and whiskey, ℥iij, to be given every three hours. Next morning owner reported that he had removed the placenta, and it was very lumpy, and that there was profuse hemorrhage from the vagina, and the cow died in a few hours. There was no evidence that the placenta was retained when I saw her, and the owner informed me that she had cleaned, he evidently mistaking the membrane for the placenta.

Case XIII. Cow calved fourteen hours previous; very fat and medium milker. Down, but got up with difficulty; symptoms well marked. Injected udder; usual care, etc. Saw her the next morning, and she was apparently well. Left powders the same as Case VII. Owner reported in a couple of days that the cow was all right.

Case XIV. *October 9th*, 8 A.M. Ayrshire cow. Calved forty-eight hours previous; in good flesh; a very heavy milker. Down and unable to rise; pulse weak and fast; temperature 101° F. Injected udder; usual directions. 4 P.M. Still down, ruminating slowly; pulse and temperature improving; appetite returning; voided urine; bowels moving. Injected udder; same care; left liq. am. acet., spts. eth. nit., and whiskey, ℥j each, to be given every five hours until three doses were given Owner reported the next morning that the cow was up and apparently well, except slight constipation. Gave mag. sulph., 1 pound; aloes barb., ℥jss; same powders as Case VII., with one-half ounce of sod. hyposulph. added. Cow made a complete recovery.

Case XV. *November* 13*th*, 11 A.M. Holstein cow, fat, and very rich milker; calved twenty-four hours; down and completely helpless; pulse imperceptible; temperature 1° F. below normal. Injected udder and instructions as to care; nothing to be given by mouth. 8 P.M. Cow up; symptoms much better; injected udder; same care. Left liq. am. acet., ℥ij doses, every five hours.

14*th*, 9 A.M. Cow up and doing well. Left powders same as Case VII. In three days owner reported bowels constipated. Gave mag. sulph., 1 pound; aloes barb., ℥jss. The cow made a complete recovery.

The above is a correct report of all the cases of parturient apoplexy treated by us during 1899. Of the fifteen cases treated, thirteen cows are alive, and I am of the opinion that if the owners had not interfered the other two would have recovered. Case I. did not give as large a flow of milk this season as usual. In Case VI. the hair all fell off of the tail. In Case VII. one-quarter of the udder was badly swollen for a few weeks, but came all right. You will notice that Case V. and all cases since received very little medicine. They were our worst cases, and made the speediest recoveries. Cases previous to Case V. were not so severe, and were tardy in their recovery, due, I think, to pouring down too much medicine. In the future we will give no more medicine than the case actually requires, and then not until the patient is able to stand or well able to swallow. The greatest difficulty with us in severe cases is to keep up the heart's action, and have had best results from nux vomica and whiskey, given in doses and frequency according to the case. Pardon me for trespassing on your time and patience with so lengthy an article. If you deem any of it worthy of publication you are at liberty to use it. Any correspondence in connection with this or any other case will be cheerfully answered.

DEPARTMENT OF CANINE AND FELINE MEDICINE AND SURGERY.

1. AN EXTRAORDINARY CASE OF HELMINTHIC MIGRATION.
2. HÆMATOMA OF THE SPLEEN.
3. NECROSIS OF THE ULNA, WITH FISTULA, IN A CAT.
4. NEOPLASM OF THE DUODENUM.

By Cecil French, D.V.S.,
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1. An Extraordinary Case of Helminthic Migration. During 1899, Miss Taylor, at that time assistant in the division of pathology of the Bureau of Animal Industry, had occasion to make a necropsy on the body of a mongrel puppy of medium size and seven or eight weeks old, which had died manifesting symptoms of peritonitis.

The whole intestinal tract was found to be swarming with round worms (ascaris canis). The liver might well be described as being in a similar condition, for the hepatic bile-ducts, gall-bladder, and intestinal bile-duct were seen to contain a multitude of these parasites. Some had perforated the surface of the liver, and, finding their way into the peritoneal cavity, had set up the peritonitis which had caused the animal's death.

The worms, when collected, almost filled a jar of about a half-litre capacity.

The above information was supplied to me by an official of the Department.

2. Hæmatoma of the Spleen. Three occurrences of hæmatoma of the spleen have recently been discovered in the bodies of dogs dead of rabies, and examined at the pathological laboratory of the Bureau of Animal Industry. In one instance the tumor

weighed some two pounds, and was composed of a well-organized blood-clot.

3. Necrosis of the Ulna, with Fistula, in a Cat. This animal had a fistulous sore of the left arm with several orifices of discharge, from which was emitted a purulent matter. Probing established the fact that the bony tissue was involved. The fluoroscope and skiagraph failed to reveal anything unusual excepting a slight opacity at one side of a spot on the outlines of the ulna.

An attempt was made for a few days to establish healthy granulations by injections of 4 per cent. solutions of formalin without any favorable results.

Ether was then administered and a tourniquet applied above the seat of lesion. The muscular tissue was incised and separated in the diseased area until the bone was freely exposed.

The neighboring periosteum was found to have undergone disintegration, and two very small orifices about half an inch apart were discovered on the shaft of the bone. The high serrations of a small amputating saw were employed to destroy the bone between the two orifices, so that a continuous open channel was established, and the point of a sharp curved bistoury to further pare away the diseased bone, the space being too small to permit of the use of the smallest curette on hand.

The wound was then thoroughly irrigated with formalin solution, and packed with xeroform gauze and left open. A moderately tight bandage was applied to the limb. The bandage was renewed daily, during which time there was no evidence of suppuration. At the end of four days the gauze was extracted, xeroform was freely powdered into the wound, and the edges were adjusted with silk sutures. In three weeks' time complete healing had taken place.

4. Neoplasm of the Duodenum. Some time ago I witnessed a tumor of the duodenum in a Russian wolf-hound. The animal was bred at the National Zoölogical Park, and later became the property of Mr. Charles Kramer, a wine merchant of this city. At the time of its death it was about three and a half years of age. It had been ailing some six weeks, and when seen by me the day previous to its death was in a condition of intense marasmus. The necropsy revealed the presence of a circumscribed, demarcated growth in the duodenum, about an inch and a quarter in length, and with an extreme thickness of not over half an inch, and the posterior border of which almost reached the ductus choledochus. The pylorus was not involved, neither was there any

metastatic growth nor any other lesion elsewhere. The stomach was enormously dilated and much hypertrophied. The lumen of the canal at the point of lesion was completely obliterated and the animal had succumbed to starvation. I removed the affected portion of the gut and laid the same aside. The mucosa was intact, but the muscularis and serosa were replaced by a very firm, uneven, grayish, fibrous material, which in cross-section showed the presence of little, scattered, whitish bodies.

At this point I was called away, and on my return, much to my disappointment, I found the specimen to be no more, it having been confided to the drains through the gross stupidity of a negro attendant. I was thus deprived of all opportunity of determining its identity by microscopical examination. At that time I felt unwilling to record the case in such a necessarily incomplete manner, in spite of its great rarity, but I have since found an instance of carcinoma of the pylorus described by Eberlein, of Berlin, in *Monatshefte für praktische Thierheilkunde*, 1896 and 1897, p. 289, which has some points of resemblance to the tumor in question. Beyond this single instance I have been unable to find any other account of tumor occurring in this portion of the alimentary tract.

Müller, in his *Die Krankheiten des Hundes*, makes the bare statement that carcinoma of the stomach has been observed in post-mortem examinations, but gives no references. In Eberlein's case the animal was a Leonberger, eight years old. Death was caused by cholæmia through closure of the orifice of the ductus choledochus, owing to an extension of the growth into the duodenum. The pylorus was the main seat of the tumor, which involved the circumference, with the exception of a line of about a finger's breadth, and had attained a thickness in places of nearly three-quarters of an inch. The pyloric opening was sufficiently large to permit of the passage of the little finger. In direct connection with this growth was another which was located at the region of the orifice of the ductus choledochus. Metastatic growths were also present in the liver and lungs.

The tumor was firm to the cut, and a grayish-white solid tissue had replaced the muscular and mucous coats. Cross-section revealed the presence of small, scattered, whitish or yellowish bodies of pin-head size. The carcinomatous nature was demonstrated by microscopical examination.

It becomes a matter of some difficulty to speculate on the identity of my tumor. The circumscribed character, judging from human conditions, would point toward carcinoma. The macroscopical appearance showed some resemblance to Eberlein's, but the age of the animal would seem not to favor this hypothesis, though Fröhner's statistics have shown that in sixty-five dogs treated by him for carcinoma in other regions of the body ten were affected between two and four years of age. The fact that the mucosa was intact adds to the difficulty. Carcinoma in man, when not originating as a primary lesion of the epithelial cells, is generally the result of extension of the growth from the pancreas, but in the case in question the latter organ was in normal condition, at least to the naked eye. The fact that the growth was of a very firm, schirrous character would hardly favor the hypothesis of sarcoma, but it is of course possible that it may have been a fibro-leiomyoma.

THERAPEUTICAL AND PHARMACEUTICAL NOTES.

UNDER THE DIRECTION OF W. J. MARTIN, M.D.C.,
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AGE OF TINCTURE OF IODINE. The time-honored injunction, to see that this tincture has been freshly prepared, seems to be in danger of joining the group of aphorisms so common in medicine and pharmacy, which is fast passing into a state of "innocuous desuetude." Recent experiments with this tincture have demonstrated that a tincture of long standing produced a deeper and more permanent stain on the skin than one of a recent make. Hence, the older the preparation the deeper and more lasting were the therapeutic effects. It was also demonstrated that instead of decreasing with age the tendency was in a directly opposite direction. This is accounted for, according to Merck's *Report*, "Because while iodine is quite volatile it does not vaporize with the rapidity of the alcohol in which it is dissolved to make the tincture."

ADULTERATION OF COCA LEAVES. Owing to the extreme scarcity and high price of Bolivian coca leaves, samples of this drug have been found on the market in a highly adulterated condition. Small jaborandi leaves is the adulterant mostly used for this purpose. Some of the samples of coca leaves examined were found to contain as high as 40 or 50 per cent. of jaborandi leaves.

USE AND ABUSE OF POULTICES. The injudicious use of the poultice has brought it into such general disrepute that its benefits are now oftentimes lost sight of and its use discarded. Dr. S. E. Sharp (*New York Medical Journal*) points out that the active principles of the poultice are moisture and heat, and hence it matters little what they consist of except so far as their capability of retaining heat is concerned. They must be generous in size, applied hot, and frequently changed. In general, it is better to use antiseptic fomentations upon open wounds, but the charcoal poultice is of considerable value as a deodorant in some cases of foul ulcer. The virtues of a poultice are seen in its power (1) to relieve congestion; (2) to promote absorption, favor resolution, and hasten suppuration; (3) to diminish tension; (4) to soften incrustations; (5) to stimulate healthy granulation, and (6) to perform the office of a deodorant.

DANGER IN USING SPIDER WEBS AS A HÆMOSTATIC. On August 22, 1899, I was consulted by one of my neighbors with regard to a horse of his which had wounded itself with brambles surrounding a field it was in. I advised him to apply bandages soaked in creosolated water in order to stop the hemorrhage, which he said was violent. Three hours later I examined the wounds, which were in the forearm and knee. They were not bleeding, were not deep, and not serious. The bleeding had been stopped by applying spider webs, which, proving insufficient, had been supplemented by bands of cotton. I remarked that cobwebs were not advisable, and were even dangerous. I do not know whether my neighbor was convinced or not, for this old practice is very difficult to uproot. At any rate, I disinfected the wounds and sewed the edges together, promising a rapid cure.

Four days later the proprietor of the animal arrived in a state of consternation. He informed me that the beast was unable to walk, its limbs were swollen, and that it would not eat. I believed he was exaggerating, but I had to change my opinion when I saw the horse. Its attitude was one of great dulness. Its forelimbs were swollen from the elbow to the coronet, and moved in a "scythe-like" fashion. The skin, which was hot and painful to the touch, was slightly œdematous. In certain places little papules exuded viscous liquid without any smell. Not knowing what to attribute this complication to, I removed the pins, fearing infection in the wounds. I was reassured by their color and the nature of the pus which came from them.

Two days later the hind legs were all out in an eruption; also some spots of horsepox had appeared on the lips and on the nostrils, leaving no doubt as to their exact nature. Where did this horsepox come from? There were cows in the place. I questioned very sternly the persons who had had charge of the horse, but could get nothing out of them to satisfy myself. All that I could learn was that similar pustules always appeared on the udders of newly arrived cows, but that all these latter were healthy at that time.

I then asked where the spider webs had come from. They came from the byre, whose ceiling, by the way, is still thickly coated with them. That reply at once showed me the probable origin of this inoculation. The vaccine dust retained by the webs had been transmitted to the wounds, which had proved to be doors of admission for it.

The long period of uselessness of the horse which resulted from the inoculation was sufficient to convince the owner of the danger run in using spider webs as a hæmostatic, and this case was useful as an experiment, as it had more effect on him than any number of arguments would have had.—(M. Pecus, in the *Recuiel de Med. Vet.*)—*Veterinary Journal.*

ANTITETANIC SERUM AS A PROPHYLACTIC. It has been shown that guinea-pigs and other animals inoculated with the poison of tetanus survive when treated at once with antitetanic serum. In France, Nocard observed 375 animals of various kinds, all of which had been wounded accidentally or surgically, and subjected to tetanic infection. These animals were given antitetanic serum at once, before the disease had time to develop. As a result, not a single case of tetanus occurred among them. On the other hand, he noticed fifty-five traumatized animals that had been exposed to tetanic infection, every one of which developed the disease.

In the August number of *Medicine* Professor George F. Butler, M.D., says: "Dr. Joseph Hughes, one of the most eminent and conservative veterinary surgeons in Chicago, has used the serum as a prophylactic in over 500 cases following wounds, both surgical and accidental." Not a single case of tetanus has developed, though Dr. Hughes has used the serum where, by former experiences, he was justified in expecting the disease to manifest itself.—*Bull. Pharmacy.*

ANTISTREPTOCOCCIC SERUM. Denys (*Centralblatt für Chirurgie*, 1900, No. 3), after an experimental research on animals, conducted with streptococci of apparently one species, which were derived from a glandular abscess, employed his antistreptococcic serum in cases of human infection: in two instances in poisoning, once from a cadaver; in ninety-nine instances of pronounced puerperal fever; in nineteen cases of infection following operations, and in a large number of cases of erysipelas. The results were most satisfactory. Of the ninety-nine cases of puerperal fever, two-thirds were saved. The cadaveric poisoning was apparently stopped at once.

As to the use of the medicament, from 250 to 300 grammes of the serum are injected within twenty-four hours into the subcutaneous tissues, and as near as possible to the seat of poisoning. The most important point in the treatment consists in administering the serum daily. It must be prepared fresh, lasting only from ten to fourteen days.—*Therapeutic Gazette.*

HISTORICAL PHARMACY. The first alkaloid to be isolated from any plant by modern chemistry was morphine, which was discovered in 1817 by the German apothecary, Freidrich Wilhelm. Serturner, strychnine, and brucine were discovered by MM. Pelletier and Caventou in 1818, although, according to George Ebers, the Egyptologist, strychnine was known and used as a criminal poison by the ancient Egyptian as far back as the reign of Rameses the great.

Thomas Fowler, the originator of Fowler's solution, was born at Stratford, England, in 1736, and was by profession an apothecary.

HARVEY AND THE CIRCULATION OF THE BLOOD.—Dr. Wm. Harvey worked out the circulation of the blood between the years 1616 and 1619. His great work entitled *Motion of the Heart and Blood* was published in 1628. This was a small quarto of seventy-two pages. According to the opinion of Dr. J. C. Dalton, this book "undoubtedly contained a greater amount of important material in small compass than any other medical work ever published."

ADULTERATION OF YELLOW WAX. Lawall and Pursel (*American Journal of Pharmacy*) recently examined twelve samples of yellow wax. Five of these were found adulterated with either paraffin or stearic acid, or both, and one with tallow and carnauba wax; only half the samples were pure and conformed to the pharmacopœial requirements.

EDITORIALS.

WHY THE ARMY SHOULD HAVE A VETERINARY CORPS.

It is right that the army should be manned and officered by the men who are best adapted by nature and training for the work their country requires of them.

It is right that the army should have the most effective guns, ammunition, transportation facilities, equipment, and organization that can be devised and the country can afford.

All reasons for the very existence of the army are reasons for its most effective equipment and organization. It is the duty of the government to the army and the country to provide means for the utilization of the best knowledge and practice extant in so far as relates to the economy and preparedness of the army in time of peace and its comfort and efficiency in time of war.

Mobility is frequently the factor determining success or failure. The requisite degree of mobility can be had only with adequate transportation facilities. Transportation in the field and at the actual seat of war depends largely, in some instances solely, on animals—horses, mules, and oxen. The cavalry and light artillery depend upon horses almost as much as upon men.

It is essential not only to economy, but to efficiency as well, that the horses should be well selected; that they should be sound and suitable for the work they have to do; that their needs should be thoroughly studied, understood, and met; and that they should, as far as possible, by the application of the best methods known, be maintained in strong, serviceable, and healthy condition.

The army should have the advantage of the services of men competent to regard those questions from the stand-point of the animal engineer. Such men must be thoroughly drilled and proficient in the application of the sciences of animal anatomy, physiology, chemistry, hygiene, medicine, and surgery. They should be skilled in the principles and practices of horsemanship; they should have an intimate knowledge of the chemistry, the nutritive values and the defects of all kinds of forage; of the proper care of animals under all conditions; of the prevention and remedy of defects and disease. This knowledge is extant and taught in such universities as Harvard, Cornell, the University of Pennsylvania, and the State Universities of Iowa, Ohio, and California to students who graduate as veterinarians. Such men are animal doctors and animal engineers.

With the single exception of the United States, the army of every civilized country in the world has found it economical and advantageous to accept the benefits that come from the development and application of veterinary knowledge.

In this country the army has never had the benefits of this knowledge, because the positions for veterinarians have been such that self-respecting men of ability could not accept them. The result has been that, with very few exceptions, veterinary science has been misrepresented by a lot of incompetent men who have failed in civil practice and have gone into the army because the regimental commanders who have hired them have not recognized the scope, possibilities, or worth of veterinary services, and have thought that anyone willing to do such work as they have required is good enough to be an "army horse-doctor." These civilian employés attached to the army have been without instruments, supplies, or suitable regulations, to say nothing of dignity or authority. The very few competent veterinarians who have drifted into the army have resigned after discovering the impossible conditions governing them, or are waiting for the enactment of a law that will place their work on a proper basis.

If the army and the country are to have the full benefits of the best knowledge extant in relation to the care and utilization of animals, and if the horses and mules used in the cavalry and artillery arms of the service and in the transportation department are to be maintained with the greatest attainable economy and in the highest efficiency, it is clearly necessary that the best veterinarians shall be employed in positions where they can make their work count. To continue to employ veterinarians without rank or official authority is of little value. To be sure, better men will be selected under the recent regulation requiring applicants to pass an examination; but however good the individuals, their work will not, under the present faulty system, give the results the public expects and has a right to demand.

The veterinary profession has been so sadly misrepresented in the army for such a long time, and veterinary science has, in consequence, been so frowned upon and repressed, that it will be difficult for it to assume its proper position.

That certain high officials in the War Department have absolutely no conception of what veterinary science is and what it is for is shown clearly by an incident of the war with Spain. When it was proposed to invade Cuba, and many thousand horses and mules were gathered at a camp in Florida, several contagious diseases, including glanders, prevailed among these animals. If the original plans had been carried out it would have been of the highest importance to have had the cavalry and artillery horses and the train mules sound and efficient. A few veterinarians of unknown antecedents or experience were picked up and asked to treat the sick animals. They were not supplied with the drugs or instruments needed, and could not get them, because there was no one in the War Department who was capable of realizing their needs. They had no authority, and private soldiers caring for animals could obey their advice or not, as they preferred. Of course, things did not go well; the most simple precautions were disregarded and glanders spread at an alarming rate. In this grave crisis an itinerant vendor of patent medicines and horse-boots was selected by an officer in the War Department and placed in charge of the sick animals as "chief veterinarian." This individual was ignorant of veterinary science, and was helpless. The two most efficient veterinarians previously employed there, either one of whom could have eradicated the threatening scourges, could not work under the direction of an overbearing incompetent, so both resigned. The Bureau of Animal Industry of the Department of Agriculture was finally called upon for assistance. This shows that when certain individuals say that a veterinary corps is unnecessary they do not know what a veterinary corps is or what it can do. They have no conception of veterinary science. The fact that the best armies in the world have such a corps has no significance to them, because they cannot see beyond the kind of so-called veterinary service the army has always had.

The corps organization is needed because without it the veterinary work will never be able to assume its true position of usefulness. Without a corps, army veterinarians will have no standing in the War Department; and their recommendations, filtering in through unsympathetic channels, will be emasculated and deprived of all value. Without a corps the work will be unorganized and unsystematized, and will fail to give better results than can be obtained by each individual regimental veterinarian. Whereas, with a corps the whole work can be raised to the standard of the chief veterinarian—who ought to be one of the best veterinarians in the country. Without a corps the veterinary work of the army will, by admission of the War Department, be placed in charge of a fourth-class clerk, thus demonstrating that an influential element in the War Department means that the army shall not have the advantage of adequate veterinary service. Of course, it is not meant that there is any direct antagonism to increased efficiency along veterinary lines; but the ignorance on this subject is so profound that it appears to be absolutely necessary that an organization having standing and power shall be created to bring into being the veterinary reforms that the army needs.

This country has always stood for progress. It has always been foremost to accept and utilize available knowledge. Its attitude toward veterinary science is no exception to this rule. The Bureau of Animal Industry is under the direction of a chief who is a veterinarian. This Bureau has made discoveries in animal pathology that have been of inestimable value to the country. In its executive work it has succeeded in effecting sanitary results that have challenged the admiration of the world. It has eradicated contagious pleuro-pneumonia of cattle in a shorter time and at less expense than have marked the completion of this work in any other country in the world. It is upon the veterinary work of this Bureau that the export trade of the United States in animals and animal products depends. This Bureau expends and gives a good return for almost $1,000,000 per year.

Almost every State in the Union has a State veterinarian, who holds a position of responsibility and trust. Veterinary schools have been erected and are maintained by several States and universities because the value of the veterinary science is manifest and recognized. It is only in the army, and, of all armies, only in the army of the United States, that veterinary science is not appreciated as a useful science and veterinarians are not recognized as useful men, deserving of positions in which they can show the value of their knowledge and work. The present feeling toward this proposed reform may be compared to the opposition that had to be overcome by the engineers of the navy when it was proposed to recognize them as officers. But the opposition was mastered, the reform came, and has been amply justified. So it is in regard to veterinary science—to animal engineering. The reform will come. All history shows this, and the sooner this service is placed on an appropriate and adequate basis the sooner the nation will reap the reward in increased economy and efficiency of her army.

HISTORY EVER REPEATS ITSELF.

In many parts of our land the same general tenor of discussion is going on relative to bovine tuberculosis that has followed in the wake of every advanced movement in dealing with the various animal plagues that have devastated from time to time entire sections of our country, impoverished and bankrupted thousands of our live-stock growers and owners, placed embargoes on our food-products in every foreign market of the world, and halted industry and thrift, throttled progress and scientific investigation, and then charged Providence with their misfortune.

Live-stock journals, breeders' associations, and communities of live-stock owners are working themselves up to a high pitch, almost bursting with indignation, and arousing the opposition of thousands who, from ignorance and thoughtlessness of their own welfare, are easy victims to the delusive charges, the foundationless statements, the inflammatory headlines of journals, from whose editorial staffs better things were expected, as they tirade against their so-termed "Quarantine Craze against Tuberculosis." In their consuming zeal they are wholly forgetful of the record they are making in history repeating. As they will not learn from past blunders, when they cried out against the stamping-out methods of contagious pleuro-pneumonia, the quarantining against dourine, the rigid control of foot-and-mouth disease, the methods of control of Texas fever, hog cholera, glanders and other equally dangerous diseases. They would print their columns in blood-red ink against the removal of any of the methods extant to-day for the protection of their families against the dangers of Asiatic cholera, bubonic plague, yellow fever, smallpox, diphtheria, scarlet fever, and send up a hue and cry all over the land to halt typhoid fever and other diseases whose cause and methods of propagation are now fully determined; forgetful that all of these scourges of man and beast represent in the death-list as a total only a small percentage of the deaths all over the civilized world from tuberculosis in its many forms; oblivious of the facts that of the thousands of boasted cures, remedies, and nostrums *ad nauseam* that have come forth for its cure have added but little as a saving factor in the frightful percentage of 14 in every 100 deaths in the civilized world daily occurring from this disease. Newspaper clamor, the short-sighted ignorance of breeders' organizations, and indignation meetings stirred up by these thoughtless tirades will not turn back the wheels of progress, born of scientific investigation and the discovery of new truths; nor will they do more than temporarily halt the measures now so clearly outlined to control and in great measure eradicate this destructive disease. Self-preservation is the first law of man, and every State that shuts its doors to the admission of dangerous additions to its breeding and dairy herds starts right and will come out best in the end. Control measures of every kind will do more in this day of enlightenment for this disease in one year than has been accomplished in a score of years through medication. Quarantine measures in Western States and Territories would not be needful to-day had similar plans been in vogue the past twenty years during the enriching of their herds from Eastern and foreign sources, where tuberculosis prevails to a much greater extent.

MICHIGAN'S WAYS.

BRAXY in sheep finds its first location in this State, according to the officials of the Bureau of Animal Industry, though several of Michigan's noted bacteriologists have designated the disease causing such severe and sudden losses in sections of that State as anthrax.

A revised decision of the Bureau of Animal Industry is announced as forthcoming from investigations of a recent serious outbreak of disease among Michigan's sheep. That it is anthrax, as claimed by some of the State investigators, is beyond question.

It was rather a unique situation to see those who had drafted and fathered the veterinary law seeking counsel to save them from the requirements the law provided. An examination as contemplated by the State Board of Veterinary Medical Examiners on the lines proposed might have left some of Michigan's veterinarians without a means of livelihood. Strange things happen these days.

The effort to have Governor Pingree recall the appointment of Dr. George Hare, of Allegan, Mich., as a member of the State Board of Examiners proved unsuccessful; Dr. Hare's claim to have practised three years before graduation was considered sufficient to establish his eligibility.

According to Michigan's State Board, a six-months' college course is to be considered as complied with by sessions of a few days in excess of five months. A better rendering would save much future trouble on this score.

The decision of the State Board of Veterinary Medical Examiners to admit to registration all graduates of the Ontario Veterinary College relieved the minds of many and prevented a bitter fight all over the State over the law regulating the practice of veterinary science.

Will the Michigan Association admit graduates of the only remaining veterinary school within their borders to membership?

Do the Michigan veterinarians threaten to boycott the JOURNAL for telling the truth; if not, what then?

The charges and counter-charges indulged in by Michigan's representatives of the profession as to who are responsible for the inadequacy of the State veterinary law's shortcomings seems past finding out. To be on varying sides of the measure most to be desired seems to be the record of many of Michigan's veterinarians at the several sessions of the Legislature when this legislation was foremost.

ARMY VETERINARY CORPS.

SENATOR KENNEY'S amendment for the establishment of a veterinary corps in the United States army has finally passed the Senate as Section 14 of Senate Bill 4300—a bill for the efficiency of the army, known, however, as the Army Reorganization Bill. This measure is now in the hands of the Military Committee of the House of Representatives for consideration. We have every hope that it will pass and become a law. In our next issue we will be able to give our readers the result, and we will publish the interesting debates which have taken place concerning it.

ERRATA.

IN the JOURNAL for April, 1900, page 199, should read: "It grows vigorously, when cultivated under favorable conditions, in any part of the temperate zone."

Page 200. "The sulphate of atropine. Its formula is $(C_{17}H_{23}NO_3)_2$ H_2SO_4."

Same page. "The hydrobromate of homatropine is a white, crystalline substance, prepared by heating tropine $(C_8H_{15}NO)$ with"

Page 204. "Administration and Posology."

MARRIAGE.

On April 26, 1900, at Mt. Joy, Lancaster County, Pa., Dr. E. W. Newcomer, graduate of class of '99, Veterinary Department of the University of Pennsylvania, was married to Miss Minnie Brenneman. The happy couple made a tour of Baltimore, Washington, Richmond, and returned by way of Philadelphia.

CONTROL WORK.

North Carolina now demands a tuberculin-test certificate of all cattle entering the State for breeding or dairy purposes. Said certificate must contain the signatures of the sanitary authorities and State veterinarian of the State from which the animal or animals come. Transportation companies are directed not to deliver livestock for any purpose but immediate slaughter without certificate.

Certificates showing a freedom from tuberculosis are now demanded for all cattle entering for breeding or dairy purposes into Connecticut (physical test), Canada, Illinois, Kansas, Massachusetts, Maine, Montana, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, New York City, North Carolina, Pennsylvania, Rhode Island, Vermont, and Texas.

The division of Animal Pathology of the Nebraska Experiment Station of the University of Nebraska has been busy since the first of the year in the distribution of the blackleg vaccine, in which it is co-operating with the Bureau of Animal Industry of the United States Department of Agriculture. The increase in the distribution is shown in the fact that during the year 1899 the division furnished blackleg vaccine to 203 applicants in fifty-six counties, the total number of doses being 23,256. Since January 1, 1900, the division has furnished the vaccine to 211 applicants in forty-seven counties, the number of doses aggregating 15,000. In the corresponding period of 1899 twenty-three applicants received 1500 doses, or one-tenth as much as the present season. This greater demand for vaccine is due rather to an increased knowledge of and confidence in the remedy than to an increase in the prevalence of the disease.

The records show that the calls have come from persons that used the vaccine last year and from their neighbors.

The reports of the applicants show that it has reduced the mortality, absolute satisfaction having been given in over 96 per cent. of the cases.

This work is being taken up very enthusiastically by farmers and stockmen of the State. It has been one of the very important subjects that have been discussed at Farmers' Institutes by this division of the station. The division at these institutes explained the process of the manufacture of the vaccine and how it is applied. There is now ready for publication by the station a bulletin which treats on the subject in a popular way, dealing with the age and species of animals attacked, the cause of the disease, disposition of the blackleg carcass, symptoms, post-mortem appearances, methods of treatment, and a full discussion of what is regarded as the only reliable and economical method, vaccination.

The division of Animal Pathology of the Experiment Station at the University of Nebraska is perfecting its plans for the coming year's campaign against hog-cholera. As is well-known, this division has been very active in inaugurating experiments with this disease. One of the experiments under contemplation is the taking up of certain counties in which hog-cholera exists and having experts there to note the mortality in the entire county, and to aid the officials of the county in eradicating the disease both by sanitary and popular methods and by the use of serum. It is hoped that if certain counties will take up this idea of assisting this division a great deal of good can be done, both in ascertaining how virulent the disease has been in the county and by reducing the percentage of mortality in the county. In other words, it is a kind of quarantine system, or stamping-out process; and it is hoped by this method that farmers can guard against this disease to a large extent. The plans are not as yet fully matured, but will be perfected before the work is begun.

North Carolina has placed herself thoroughly in accord with the General Government looking to the control and eradication of Texas fever among cattle. The establishing of quarantine lines, the movements of all cattle in infected territory, and the regulation of all transportation centres and lines are to be in accord with Federal regulations, subject to all modifications as conditions arising may necessitate.

The veterinary profession of New York State could not do better than urge strongly among the stock-owners, breeders, and their clients and others the adoption of the plans now in force in Pennsylvania for the better control and suppression of tuberculosis.

Its condemnation of the methods pursued by those directing the Farmers' Institutes in employing members of the profession with untenable views and ignorant of the progress of science in the control and eradication of this disease continues to menace good work in this direction.

Montana's regulations for the control and eradication of sheep scab will do much for the people of that State if the latter will coöperate with the district inspectors. State Veterinarian Knowles in his bulletin covers the subject in a thorough manner and points the way of relief from this animal pest.

A. V. M. A.

Secretary Stewart has just issued the following important letter in connection with the coming thirty-seventh annual meeting:

At Detroit, Mich., on September 4,5,6,and 7,1900, the American Veterinary Medical Association will hold its thirty-seventh annual meeting. The working motto of this Association is usefulness. It aims to develop and disseminate tangible, helpful thought and knowledge in the veterinary profession throughout the continent of America. Year by year its sphere of influence becomes more and more wide-spread, and its potency for advancing and enlarging public knowledge and appreciation of veterinary science as a useful and indispensable factor in the promotion of public welfare is more clearly recognized. The substantial character of the progress it is making is noted at home and abroad. The papers presented and discussed at its meetings merit and receive the careful attention of medical men of other continents. English veterinary editorials call attention to the great value of the published reports of the proceedings of this Association, and urge English Associations to emulate its example.

In addition to the regular meeting of the A. V. M. A. there will be held meetings of the Association of Experiment Station Veterinarians and the Association of Veterinary Faculties and State Boards of Veterinary Examiners.

The difficulties encountered in the enforcement of municipal and State sanitary regulations must always engage the serious attention of veterinarians. A constantly increasing number of them are employed in the control of hog-cholera, glanders, tuberculosis, and other diseases, slaughter-house and market inspection, and milk and dairy inspection. New problems or new phases of old problems are constantly developing. A number of papers relating to this phase of sanitary medicine will be included in the programme.

The clinics held in connection with the last two meetings have proved so interesting and instructive that this feature of the programme will be given more time during the coming meeting. It is probable that there will be three clinical sessions, and a considerably larger number of operations demonstrated. The practical value of the clinic is no longer questioned. The explanatory remarks made in connection with each surgical demonstration and the numerous papers relating to general practice must certainly appeal very strongly to every practising veterinarian.

The Committee on Local Arrangements has its plans about completed, and you are assured that nothing will be lacking to make the social phase of our meeting a most pleasant memory. Detroit is famous for its hospitality, and members and visitors who attend this meeting of the A. V. M. A. will certainly join with the hosts who sing its praises.

The number in attendance at the meeting in New York City last year was fully double that of any previous meeting. Over sixty ladies accompanied the members and visitors. They participated in and added greatly to the social pleasures of the meeting. Of those who attended this meeting the one has yet to be found who did not realize that he was many times repaid for his expenditure of time and money. The programme for the meeting to be held in Detroit will be a very attractive one, and it is confidently expected that the attendance will be even larger than last year. Who can afford to stay away if it is possible to attend? This timely notice is given that you may plan to be present.

The following proposed amendments to the Constitution will come before the Association for its consideration and adoption or rejection :

To amend Article III. of the Constitution by omitting the words "three Vice-Presidents, one from the East, one from the Central, and one from the Western section of the country," and add after the "President" the words "five Vice-Presidents."

The present state of the treasury permits the prompt publication of the proceedings of our meetings, and the Publication Committee was enabled to place the report of the last meeting in your hands withn sixty days after the close of the New York meeting. Many letters expressing appreciation of this report, both for its prompt publication and the fulness of detail, have been received. The Committee welcomes criticism of this report as well as suggestions intended to increase the value of the report of the meeting to be held in Detroit.

If you intend to prepare a paper for the programme of the Detroit meeting, and you are respectfully urged to do so, you should notify me at once, stating title of same.

If there be any errors in the address on the enclosing envelope kindly advise me of the same, that our books may be corrected and make certain the delivery of future communications from this office.

If your neighbor veterinarian is likely to be interested in the work of this Association and would probably apply for membership if solicited, will you not write to the resident Secretary of your State and secure an application blank and copy of By-laws for your neighbor's consideration?

Your attention is respectfully called to the enclosed statement of your account for dues, and you are urged to give this matter early attention. You know upon reflection that prompt payment of dues constitutes an elixir of life to an organization. Your proportion of said elixir is needed to maintain the vitality of the A. V. M. A.

COMMENCEMENT EXERCISES.

GRAND RAPIDS VETERINARY COLLEGE.

This College held its annual commencement exercises in the College Auditorium, Thursday, March 29. They were attended by a large number of the leading veterinarians of the State, among whom were George Hare, President, and W. W. Thorburn, Secretary of the Michigan State Veterinary Board of Examiners. The graduating class consisted of the following: J. B. Weir, Smicksburg, Pa.; T. P. Pomeroy, Freeport, Mich.; A. E. McCall, Memphis, Mich.; F. O. N. Hovey, Coopersville, Mich., and H. L. Hickox, city. Coleman Nockolds, V.S., M.D., having completed a post-graduate course, was granted the degree of D.V.S. Weir and Pomeroy received honorable reward for high attainment in their college work. Hovey and McCall received honorable mention for second and third places. In the junior class C. E. Dornheim, Providence, R. I., took first; A. B. Warrener, Portsmouth, Ohio, second, and G. S. Throp, third prize in anatomy. In medicine, B. F. Baldwin, first; C. E. Dornheim, second, and A. B. Warrener, third.

One of the most pleasant features of the exercises was the conferring of the honorary degree, doctor of veterinary science, upon W. W. Thorburn, Secretary of the Michigan State Veterinary Board of Examiners. This was done by the President of the Board of Trustees, Professor J. A. McPherson, in a few well-chosen remarks, followed by the college dean, who at some length went over the work performed by Dr. Thorburn and the legislative fight that has been waged for years in this State between the American and foreign element. He showed from statistics that Dr. Thorburn had done more work and devoted a great deal more time and attention to this work than any other veterinarian in the State, and did it without price. He said that Governor Pingree should be applauded by every American citizen who has the welfare of the veterinary profession at heart for his recognition of the doctor, by appointing him to a place on the State Veterinary Board; and that the trustees and faculty of the college have but fittingly, through this act, expressed their gratitude to the Governor for this appointment. Dr. Thorburn said that the conferring of the degree was entirely unexpected, and feelingly acknowledged the honor paid him by the trustees of the college, and wishing the college many years of prosperity.

KANSAS CITY VETERINARY COLLEGE.

The ninth annual commencement and banquet of this college was held at the Midland Hotel, Kansas City, March 14, at 8 P.M. The degree of D.V.S. was conferred upon the following: Messrs. Robert H. Carswell, Edward Makins, Jr., Claude M. McFarland, Willis H. Meadors, David C. Moberly, Charles A. Mooney, Joseph W. Parker, Horace E. Rice; Drs. Wendell A. Knight, and William Folsetter, Drs. Knight and Folsetter having taken a post-graduate course.

The Faculty, graduates, alumni, and friends of the college gathered at the banquet table, and after the repast was served the Faculty address was delivered by Dr. I. J. Wolf, followed by presentation of the diplomas by Dr. C. J. Sihler; class response, by Dr. Joseph W. Parker. Other addresses were made, as follows: "Comparative Medicine," Dr. H. C. Babcock; "The Undergraduate," Mr. Arthur Trickett; "The Municipal Veterinarian," Hon. R. J. McFarland; "Veterinary Jurisprudence," J. A. McLane, Esq.; "The Veterinarian and the Breeder," Dr. W. Ross Cooper; "Veterinary Colleges," Dr. William Folsetter. The exercises proved a most pleasing arrangement. The graduating class is reported as having been exceptionally diligent throughout the session, and passed with high averages a rigid final examination.

ONTARIO VETERINARY COLLEGE.

The closing exercises of session 1899–1900 of this institution were held in the college buildings on Thursday, March 29. There was a large gathering of students anxious to hear the results of the recent examinations, and who manifested their interest in the proceedings by frequent bursts of applause as the names of the successful prize-winners were announced. Professor A. Smith, the principal, took the chair, and with him on the platform were Professor Baker, of Toronto University; Mr. H. J. Hill, Industrial Exhibition Association; Dr. Duncan, Dr. Chambers, Professor J. H. Reed, V.S., of Guelph Agricultural College.

Professor Smith opened the meeting by a short address, and called on Dr. Duncan to read over the graduating list, and also the list of prize-winners. The prize-winners were then called forward, and the prizes, consisting of gold and silver medals and professional books, were duly presented. Mr. Hill presented the gold medal given for the best dissected specimen by the Toronto Industrial Exhibition Association.

Professor J. H. Reed, V.S., on behalf of Mr. Wilson, President of the Ontario Veterinary Association, presented the gold medal donated by the association for the best general examination.

Professor Baker gave a short but very interesting address to the students, in which he noted the changes that have prevailed as to the use of the horse for military purposes. A few years ago it was predicted that the perfection of artillery would supersede the horse to a great extent, except for scouting. It is now being demonstrated that the necessity for greater mobility in infantry will require a larger number of horses for mounted infantry. Also for civil purposes it has been predicted that electricity would to a great extent supersede the horse as a motive power; but he confidently believed that the horse for rapid movements would still maintain its old-time ascendancy. He also contended that for humanitarian reasons, for the relief of pain and the treatment of the ailments of all dumb animals, the field for the educated veterinarian would increase and not diminish.

Mr. G. A. Shaw, President of the graduating class, in a short address presented Professor Smith on behalf of the class with a magnificent picture of the class. Professor Smith, in an eloquent address in response, thanked the class most heartily for this indication of the good feeling existing in the college. Thanks were also tendered Professor Baker for his address.

The following is a list of graduates and prize-winners :

G. Harry Acres, Calgary, N. W. T. ; Freeman J. Aldous, Fenelon Falls, Ont.

William P. Barnes, Brookline, Mass.

James A. Campbell, Bedford, England ; W. E. Clemons, Grandville, Ohio.

Henry James Daniels, North Adams, Mass. ; Albert L. Deal, Wilmot, Ohio ; John H. Dellenberger, Jr., Akron, Ohio ; Dolph S. De Wolf, Grand Rapids, Mich. ; Burt Kimball Dow, Cabot, Vermont.

Frank E. Erwin, Fisher, Minn.

Jacob Palmer Foster, Bangor, South Dakota ; Robert Frame, Treherne, Man. ; Joseph Freeman, Hull, England.

Henry James Hagerty, Dubuque, Iowa ; Charles A. Hamilton, Kingston, Ont. ; Oscar Hartnagl, Victoria, B. C. ; L. Morey Holmes, New Orleans, La.

Lewis N. Jargo, Stoughton, Wis. ; Henry N. Jeffries, Greensburg, Ind. ; George L. Jermyn, Wiarton, Ont.

David S. Krull, Clarence Centre, N. Y.

Walter Keys Lewis, Anderson, South Carolina ; Ernest E. Linton, Kingston, Jamaica, W. I. ; James Lucas, Liverpool, England ; Ashley T. Lyster, Richmond, Quebec.

Milton P. McClellan, St. Thomas, Ont. ; James McFadyean, Waldemar, Ont. ; Charles D. McGilvray, Binscarth, Man. ; John D. McLeod, Kincardine, Ont. ; Charles H. McVeigh, Vars, Ont.

Charles Henry Paquin, Barre, Mass.

Arthur C. Ramsay, Exeter, Ont. ; R. S. Reece, St. Ann, Jamaica, W. I. ; John Arthur Rennie, Stevenspoint, Wis. ; Beale Atwood Robinson, Parsons, Kansas ; William T. Rodgers, Toronto, Ont.

George A. Shaw, Manchester, N. Y. ; Edward J. Shirley, Watford, Ont. ; A. Fraser Smith, Claude, Ont. ; George O. Smith, Ligonier, Ind. ; John Macdonald Smith, Kingston, Ont. ; Archibald H. Stewart, Dalesville, Ind. ; H. R. Stewart, Toronto, Ont.

Jacob Van Hont, Heron, N. Y.

Stephen A. K. White, Ottawa, Ont.

Prizes and Honors.

Disease and Treatment (*Senior*).

First prize—J. P. Foster, silver medal.

Second prize—C. D. McGilvray.

Third prize—W. K. Lewis.

Honors—W. P. Barnes, H. J. Daniels, D. F. De Wolf, B. K. Dow, F. E. Erwin, R. Frame, H. J. Hagerty, C. A. Hamilton, L. M. Holmes, O. Hartnagl, L. N. Jargo, E. E. Linton, J. Lucas, J. McFadyean, J. A. Rennie, A. C. Ramsay, B. A. Robinson, G. A. Shaw, G. O. Smith, E. J. Shirley, A. F. Smith, A. H. Stewart.

Materia Medica (*Senior*).

First prize—C. D. McGilvray.

Second prize—J. P. Foster.

Third prize—W. K. Lewis, A. C. Ramsay and A. F. Smith (equal).

Honors—F. J. Aldous, J. A. Campbell, D. S. De Wolf, H. J. Daniels, B. K. Dow, F. E. Erwin, R. Frame, C. A. Hamilton, O. Hartnagl, L. M. Holmes, L. N. Jargo, A. T. Lyster, E. E. Linton, J. Lucas, J. McFadyean, J. A. Rennie, B. A. Robinson, A. H. Stewart.

Chemistry (*Seniors*).

First prize—C. D. McGilvray.

Second prize—J.P. Foster and L. M. Holmes (equal).

Honors—D. T. De Wolf, R. Framer, H. J. Hagerty, C. A. Hamilton, L. N. Jargo, H. N. Jeffries, W. K. Lewis, A. T. Lyster, J. Lucas, E. E. Linton, A. C. Ramsay, R. T. Reece, B. A. Robinson, A. F. Smith, G. O. Smith, E. J. Shirley, A. H. Stewart.

Pathology (*Seniors*).

First prize—W. K. Lewis.

Second prize—C. D. McGilvray.

Third prize—A. F. Smith.

Honors—F. J. Aldous, J. A. Camplell, D. S. De Wolf, B. K. Dow, F. E. Erwin, J. P. Foster, C. A. Hamilton, L. M. Holmes, G. S. Jermyn, E. E. Linton, J. Lucas, J. McFadyean, B. A. Robinson, A. C. Ramsay, A. H. Stewart.

Physiology (*Senior*).

First prize—C. D. McGilvray.

Second prize—J. P. Foster.

Third prize—W. K. Lewis.

Honors—W. P. Barnes, B. K. Dow, C. A. Hamilton, L. M. Holmes, L. N. Jargo, A. C. Ramsay, B. A. Robinson, A. F. Smith, A. H. Stewart.

Anatomy (*Seniors*).

First prize—J. P. Foster.

Second prize—C. D. McGilvray.

Third prize—A. C. Ramsay.

Honors—W. P. Barnes, J. A. Campbell, A. L. Deal, D. S. De Wolf, B. K. Dow, F. E. Erwin, R. Frame, H. J. Hagerty, L. M. Holmes, L. Jargo, E. E. Linton, W. K. Lewis, J. Lucas, J. McFadyean, B. A. Robinson, A. F. Smith, A. H. Stewart, H. R. Stewart.

Entozoa (*Seniors*).

Prize—J. McFadyean.

Honors—H. Acres, F. J. Aldous, W. P. Barnes, B. K. Dow, F. E. Erwin, R. Frame, J. P. Foster, J. Freeman, C. A. Hamilton, H. N. Jeffries, L. N. Jargo, J. Lucas, A. T. Lyster, M. P. McLellan, C. D. McGilvray, C. H. McVeigh, J. A. Rennie, B. A. Robinson, G. A. Shaw, S. A. K. White.

Dissected Specimens (*Seniors*).

Gold medal, given by the Toronto Industrial Association—C. D. McGilvray.

Second prize—J. A. Campbell.

Third prize—F. E. Erwin.

Best General Examination.

Gold medal, given by the Ontario Veterinary Association—C. D. McGilvray.

Honors—B. K. Dow, F. E. Erwin, J. P. Foster, L. M. Holmes, W. K. Lewis, A. C. Ramsay, A.F. Smith.

McKILLIP VETERINARY COLLEGE.

THE fourth annual commencement of this college was held in the College Auditorium, 1639 Wabash Avenue, Chicago, Ill., on the evening of March 29, 1900, and the following programme presented:

Invocation, by Rev. Charles Brodie; baccalaureate address, by Dr. E. M. Reading; and class exercises, consisting of a salutatory address, by D. Clinton Burnett; class poem, by A. A. Adamson; class prophecy, by J. B. Hollenbeck; class history, by James Ragen; valedictory address, by J. P. O'Connor, followed the Secretary's report and presentation of prizes, and the conferring of degrees and the presentation of diplomas by President M. H. McKillip.

The following senior students received the degree of M.D.V.: S. E. Huntsberger, Burton City, Ohio; J. G. Hayes, Chicago, Ill.; Robert E. Cochrane, Milwaukee, Wis.; H. James Elliott, Brandon, Manitoba; Thomas E. Newell, Chicago, Ill.; M. J. O'Donnell, St. Clair, Pa.; James Ragen, Verona, Ill.; John E. Sommers, Buffalo, N. Y.; J. W. Rutledge, McGregor, Manitoba; A. A. Adamson, Newton, Iowa; D. Clinton Burnett, Sharon, Pa.; J. B. Hollenbeck, Salem, Ohio; S. P. Smith, Corasallis, Oregon; C. P. Liegerot, Ruxburg, Idaho; H. F. Pegan, Cochranton, Pa.; A. G. Hopkins, Madison, Wis.; James Nicholson, Pipestone, Minn.; S. G. Burkholder, Denver, Pa.; L. A. Merillat, Chicago, Ill.

The class of practitioners consisted of fourteen veterinarians, nine of whom passed the required examination, viz.: W. L. West, V.S, Bangor, Me.; Burton R. Rogers, D.V.M., Ames, Iowa; F. D. Markham, V.S., Port Leyden, N. Y.; S. P. Smith, D.V.M.; C. P. Liegerot, D.V.M.; H. F. Pegan, V.S.; D. C. Burnett, V.S.; J. B. Hollenbeck, V.S.; T. Lambreicht, V.S.

The auditorium was appropriately decorated by the junior class with flags and bunting; the attendance was large, and in the history of the college the fourth annual commencement will be recalled as a memorable event.

Dr. H. M. Hunter fills the rôle of veterinarian to Tulare County, California, and is now located at Visalia.

The ever-sanguine Pendry, of Brooklyn, while skilled in the treatment of the ailments of animals, is ever ready to prescribe for the ills of the human family, and while prescribing for others finds a quiet game the best cure for melancholia or a troubled mind, and a horseback ride a sovereign remedy for indigestion. He is wont to say "What a beautiful world this is, so full of fun, and yet how many people miss it." Pendry is never among the left overs.

SOCIETY PROCEEDINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE regular monthly meeting was called to order March 7th, at 8.30 o'clock, by President Robertson. After roll-call, reading of minutes of previous meeting, etc., by the Secretary, and the report of the Board of Censors had been heard through Chairman Clayton, a paper on "Docking" was presented by Dr. Ryder. This paper, which was carefully prepared so as to touch upon all phases of the operation, was productive of a very animated and interesting discussion. A vote of thanks was offered the essayist from the Association through Dr. O'Shea, and seconded by Dr. Bell. Dr. O'Shea reported progress from the Legislative Committee. Dr. Bretherton, chairman of the Prosecuting Committee, had no report to offer at this time, but desired a communication to be read by the Secretary relative to an advertisement from a Brooklyn non-graduate. After the reading the President directed the matter to be referred to the Brooklyn member of the Prosecuting Committee, Dr. Goubeaud. Dr. Bell, chairman of Ways and Means Committee, reported a paper for the April meeting by Dr. Hanson. Moved and seconded, that the reports of the several committees be accepted; carried. Moved and seconded, that the meeting adjourn; carried.

The meeting was called to order April 11th, at the usual hour, in the lecture-room of the New York American Veterinary College, President Robertson presiding. Following the usual business proceedings of the Association, Dr. H. D. Hanson gave an extemporaneous discourse upon "What Constitutes a Spavin in an Examination for Soundness." The doctor stated that his principal object in offering his remarks upon this subject was to provoke a discussion, and in this he was decidedly successful, this practical every-day subject seeming to appeal to every one present. Dr. Delaney, the Association wit, stated that some man from New Jersey had a few days previously found a horse in one of our New York horse marts with three spavins on one leg. Prof. Schwarzkopf asked whether saddle horses were more subject to spavin than driving horses. The essayist stated that his practice brought him in contact with too few saddle horses to be able to draw a conclusion. Dr. Ackerman stated, in reply to Prof. Schwarzkopf's question, that his connection for a number of years with a riding academy as its veterinarian had taught him that this condition was not prevalent among that class of horses, he having treated but very few cases of spavin in the academy.

Legislative Committee—Dr. O'Shea, chairman, reported that his committee would be unable to report until the Legislature adjourns, but at the instigation of Prof. Schwarzkopf offered the following resolution, to be sent to Senators Platt and Depew, Washington, D.C.:

Whereas, the United States is the only civilized government in the world whose army has no veterinary corps or properly equipped veterinarians for the care of its public animals and for the inspection of meat consumed by its soldiers;

Therefore, we, the Veterinary Medical Association of New York County, do most respectfully ask you, our representatives in the Senate, to request the Secretary of War and your colleagues in the Senate to establish a veterinary corps in the United States army worthy of our great country.

The above to be signed by the President and Secretary of the Association, sealed with the Association's seal, and forwarded to Senators Platt and Depew.

The Committee on Prosecution having nothing further to report, President Robertson reported, in the absence of the Ways and Means Committee, that Dr. Lellman would present some specimens at the May meeting. Moved and seconded, that the meeting adjourn.

ROBERT W. ELLIS, D.V.S.,
Secretary.

PERSONALS.

Dr. H. A. Meisner, of Baltimore, Md., the dark horse in the race for State Veterinarianship of Maryland, wears a sanguine smile as he basks in the confidence of carrying this trophy in his belt.

Dr. Ernest Spaeth, of Wyoming, who was recently on a visit to his home in Philadelphia, has returned again to the region of the setting sun.

Editor Hoskins, of the JOURNAL, will be one of the Democratic electors of Pennsylvania, and only wishes that his State was not so overwhelmingly Republican that he could anticipate the casting of a vote in the Electoral College for W. Jennings Bryan.

Dr. Duncan McEachran, of Montreal, has purchased over five hundred range-horses in Canada for the English army in the South African war.

Dr. H. L. Ramacciotti has been appointed City Veterinarian and food-inspector for Omaha, Neb., for a term of three years. A well-deserved appointment.

The famed "Pimlico" races of "Maryland, My Maryland," continue to woo the attendance of our esteemed colleague, Dr. William Dougherty, of Baltimore.

Dr. M. Jacobs, resident surgeon of the Veterinary Department of the University of Pennsylvania, was among those who were before the examining board for inspector in the Bureau of Animal Industry.

Professor Joseph Clarke Robert, B.S., V.M.D., A. and M. College, Starkville, Mississippi, received the degree of M.D. from Sewanee Medical College, University of the South, January 18, 1900.

Dr. Charles H. Higgins has been transferred from the cattle quarantine system of the Dominion of Canada to that of the public health, and is engaged in establishing a bacteriological and biological laboratory at Victoria, B. C., where biologic products will be produced for the benefit of bubonic plague appearing on that coast.

Dr. W. W. Martin, of Battery A, and for a time in the army service in Cuba, but more recently engaged in commercial enterprises, was a visitor to Philadelphia in April, and spent several days at the veterinary department, where for a time he filled the rôle of resident surgeon.

Dr. D. S. White, of Columbus, Ohio, was presented with a handsome set of harness by his class of horseshoers receiving instructions under his teaching the past winter.

Dr. Charles F. Dawson, late of the Bureau of Animal Industry, has accepted a position in the laboratory of Parke, Davis & Co., Detroit, Mich.

Dr. H. S. Drake, of Leesburg, Va., has been on the sick list since the beginning of the New Year.

Dr. T. B. Pote, formerly of Terre Haute, Ind., is now located at St. Louis, Mo.

Much credit is given Professor A. Smith, of Toronto, for the successful outcome of the Toronto horseshow.

Dr. C. C. Cattanach, of New York, is keenly interested in the saddle horse contest now being conducted by the *Rider and Driver*, and names " Ladysmith " as his first choice.

Dr. A. McKenzie, of Washington, D. C., has entered the field of proprietary remedies, and now uses the columns of sporting papers in advertising the same.

Dr. Thomas W. Scott, of Clarksville, Tenn., entered the service of the Bureau of Animal Industry in April and was assigned to duty in Kansas City, Mo.

Dr. N. L. Townsend, of Moorestown, N. J., was one of the applicants before the civil-service examining board for meat-inspector in April.

Dr. V. G. Hunt, of Arcola, Ill., has turned the sixty-sixth milestone in life, is still active in professional life, keenly interested in Association work, and continues to read three of the leading veterinary journals in the search for fresh knowledge and new truths.

Dr. H. C. Glover, of New York City, has been elected president of the Patchogue Long Island Driving Association.

Professor H. C. Wood, of Philadelphia, well known to every veterinary student of the University of Pennsylvania, has been chosen as one of the authorities to revise the United States *Pharmacopœia.*

Veterinarian Major Phillips, of the British Army, has been sojourning in Canada for a period, engaged in the purchase of remounts for the British cavalry service.

Dr. James L. Robertson, of New York City, will be one of the veterinarians of the Elk Ridge horseshow, Baltimore, in May.

Dr. H. G. Patterson, of St. Joseph, Mo., Hal C. Simpson, of Denison, Iowa, and D. B. Pierce, of Springfield, Mass., have accepted service with the British Government and shipped from New Orleans to South Africa with consignments of horses.

Drs. Salmon, Huidekoper, Hoskins, and Clement, of the Army Legislative Committee, and President Pearson, of the A. V. M. A., were in conference at Washington, D. C., in April relative to the progress of army legislation.

Dr. S. Beattie, of Madison, Wis., was on the sick list in April.

Dr. H. James Elliott, of Brandon, Manitoba, is the secretary of the Brandon Kennel Club; takes a very active interest in the field trials of the canine species and event-shows of their organization. The club is in a flourishing condition, and contributes very much to the increased interest in the canine world through Manitoba.

Dr. S. G. Burkholder, of Chicago, Ill., severed his connection with the Bureau of Animal Industry in order to attend the Northwestern Medical College, from which institution he expects to graduate this spring.

Dr. C. S. Gelbert, of Scranton, Pa., was a visitor to the JOURNAL office and Veterinary Department of the University of Pennsylvania in May.

City Veterinarian Ramacciotti, of Omaha, will be at Detroit, there to discuss food-inspection problems and further this important work over our land.

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MY EXPERIENCE WITH MEDIAN NEURECTOMY.[1]

BY J. PAYNE LOWE, D.V.S.,
PASSAIC, N. J.

IN bringing before you the subject of median neurectomy it is my intention mainly to give you my experience with the operation; to be modest, to cite a number of cases which I have operated upon during the past year or two, giving you accurately and impartially the pathological conditions for which the operation was performed in each case, the immediate result, and the subsequent history to date; in doing this I hope to be able to show that median neurectomy is an operation that is practicable and safe, and that the practitioner should perform it without hesitancy wherever it is indicated.

Familiarize or rather refresh your mind with the surgical anatomy of the region, which you can get from any of the standard authorities on veterinary anatomy. The anatomical essentials, however, can probably be more readily obtained by referring directly to that most excellent treatise on this operation by Professor C. Pellerin, and translated into English by our own Liautard.

Where the operating-table cannot be used the animal is cast with the hobbles on the side which is to be operated upon; the upper forelimb is taken from the hobble, and by means of a side line secured to the corresponding hind one. The lower forelimb (the one to be operated upon) is also taken from its hobble, and the bar hobble applied to it and the shin of the hind limb. This limb is also held firmly in extension by an assistant with a strap or rope. Having thus well secured your animal, have sponges, antiseptics, solutions, etc., and the necessary instruments ready, which are: two bistouries, one convex and one straight, a grooved directory, curved scissors, bull-dog forceps, plain dissecting forceps, a couple of blunt retractors, and a blunt tenaculum.

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[1] Read before the Veterinary Medical Association of New Jersey at a regular meeting held in Newark, N. J., May 10, 1900.

The operation is performed upon the inner side and upper portion of the forearm; the point for the incision is immediately under the round eminence formed superiorly by humero-radial articulation, and inferiorly by bicipital tuberosity and the rough impressions back of it. Placing the finger just inferior to the above eminence, feel for the posterior border of the radius, and make your incision just a little posterior to that border, say a quarter of an inch. By observing this point you will generally be right over the nerve and posterior to the vein. At this point make your incision through the skin, about one and a half inch long, then cut through and parallel with the fibres of the sterno-aponeuroticus muscle; then go through the cellular tissue, when you will come down upon the antibrachial aponeurosis, which is attached to the posterior border of the radius, and is dense and inelastic. Now carefully take hold of this aponeurosis with your bull-dog forceps, raising it slightly, and carefully puncture it sufficiently to allow the introduction of the grooved directory, using this as a guard against injuring the vein. By cutting from within outward, divide this aponeurosis to the extent of your outer incision. Have an assistant hold the edges of the wound apart with a pair of blunt retractors. We now see the internal flexor of the metacarpus. In front of this muscle we should see the nerve which is recognized by its whitish color, flattened form and sensitiveness. You now also see the large vein in front of the nerve, which is recognized by its dark color. At this location the vein usually lies in front of the nerve. The artery is generally concealed by the vein and nerve; but experience and a careful study of the anatomy will show that these relations are not always constant, so if you do not see the nerve have patience and look further.

Having found and isolated the nerve, pass a blunt tenaculum under it and raise it slightly, dividing it on a level with the superior part of your incision. Take hold of the distal end and resect an inch of the nerve and remove it. Wash your wound out antiseptically, and your operation is completed.

If the operation has been neatly performed the wound will be healed in about two weeks. If the season permits irrigate the limb daily with cold water, and follow out the general principles of antiseptics.

Case I.—The subject was an aged mare, weighing about one thousand pounds, suffering with chronic periostosis of the fetlock.

The lameness was very marked. I operated upon her on April 1, 1899. Immediately after the operation an apparent improvement was noticed, which was probably due to shock and being confined in the hobbles. On the second day she was very stiff and sore in walking, which was due to the soreness and swelling in the operated region. This animal was given six weeks' rest, but the results were negative. No improvement whatever, as the exostosis affected the mobility of the joint. It can be stated that the lameness was mechanical, and therefore could not be overcome.

CASE II.—Small mare used for road purposes. Had been lame in the foot for a period of three months, during which time she rested and received a liberal amount of palliative treatment, and had three blisters applied without any or very little improvement. Cocaine injected over the internal plantar nerve on several occasions caused the mare to go temporarily sound. My diagnosis was navicular disease in its incipiency. I operated on her on April 10, 1899. In two weeks the wound was healed, and in three weeks the mare was driven and went sound, and continues to go sound at this writing. Previous to her lameness this mare had good knee action, and it is interesting to know that after the operation she had all her former action, but she always pointed the foot as she did before the operation. I am of the opinion that the operation diminished the pain sufficiently to remove the lameness, but as sensation was still partial in the foot, and in view of the nature of the regions, she still pointed. I have been looking for this mare to go lame, but she does not.

CASE III.—Mare, twelve years old, weighing about thirteen hundred pounds; had been lame for about a year; was too lame to be of any service, even for slow work, and inspection and manipulation of the limb revealed the following: marked induration of the flexor tendons and contraction of the same, with consequent knuckling; an exostosis was detected on the inside of the coronet; the heel of the foot was high, and in standing the toe alone was placed on the ground; the heel did not quite touch the ground in walking. I looked upon the exostosis as the primary cause of the lameness, and the thickening and contraction of the tendons and the high heel as the result.

On April 15, 1899, I operated upon this mare, and immediately after the operation she stood down square and put weight on the limb in standing; in fact, she had a tendency to rest the other limb. This mare had a month's rest, and since has been serviceably and practically free from lameness. Of course, considering the lesions that had existed we could not and did not get that freedom of movement which you get in a normal limb.

Case IV.—Mule; chronic tendonitis; very lame, even in walking; limb flexed in standing, and did not get the heel down right in walking; subjected to the operation on May 14, 1899. The usual rest was given; the immediate effect was not so pronounced, but after a month the mule was put to work, going nearly all right, and gradually improved, and now, almost a year afterward, is going serviceably sound, and is again a useful working animal.

Case V.—Heavy draught-horse, fourteen years old, and weighing about sixteen hundred pounds. A tendonitis developed, which resisted the usual forms of treatment. Rest was given and two blisters applied, but the trouble progressed, contraction and thickening of the tendons becoming well marked, with knuckling. The animal was now very lame, and three months had elapsed.

On September 26, 1899, median neurectomy was resorted to, and at once relief was afforded. The animal rested about six weeks and was put to work, doing heavy hauling, and to-day is going all right. The lesions are still apparent to the eye, but an apparently doomed horse was restored to usefulness.

Case VI.—Aged gray mare, very lame in walking; periostosis of the fetlock was present. She also had side bones on both fore-feet and on one hind foot. I did not connect the lameness with the side bones, but attributed it to the periostosis of the fetlock. I operated on January 15, 1900. Immediately after the operation a marked improvement, but still slightly lame. Was rested for four weeks and seemed to be doing well. Was put to work at heavy pulling and the lameness returned with all its severity. This was a negative result. At this time the animal was disposed of, and had passed out of my observation.

Case VII.—Mule, lame for a year or more, lameness gradually becoming aggravated. On February 12, 1900, at the time of the operation, was very lame and not much weight put on the limb when standing. Immediately after the operation a marked improvement was noted in walking and trotting, though the action of the lower part of the limb was limited. The last time I saw this animal he was going well and working every day. I have operated on several other cases quite recently, but at this time will not report on them, as I have not had an opportunity of seeing the results. You will therefore see that in two cases of chronic periostosis of fetlock the result in both cases was negative, but some anchylosis was present, hence a mechanical lameness remained.

One case of navicular disease; result successful. I do not wish it to be interpreted that I prefer this operation for navicular arthritis, but the case was experimental and I give the results.

Four cases of chronic tendonitis; all successful. Some advocates of the operation claim that it is indicated in many of the chronic conditions from the knee down. Exostosis on the knee, canon, fetlock, and foot, providing no anchylosis is present, and the lesions are on the inner side of the limb. About many of these I cannot express an opinion, as I have not operated upon this class of cases; but there is a class of chronic cases often seen in heavy horses (chronic tendonitis) in which condition the animal is practically useless, where firing and blistering are often ineffective, and I do believe that in this class of cases that if you perform median neurectomy you will be rewarded by very gratifying results.

In concluding I would say that you must use good judgment in the selection of your cases. Do not select cases where it is not indicated, and then condemn the operation because the results are negative. And, again, on the other hand, do not operate on cases where it is unnecessary and where other forms of treatment would give relief.

HORSESHOEING.[1]

By Charles Saunders, V.S.,
EL DORADO, KAN.

THE subject of practical horseshoeing embraces a wider field for combined labor than may be apparent under its title. To approach proficiency a clear understanding of the locomotive functions of the horse is required, and if that be acknowledged the necessary steps must be taken by going back to the elements of anatomical science.

The practice of farriery, in which, as a whole, science, artistic skill, and physical activity are called into requisition, demands resources of self-denying, able men.

Man, unlike every living creature besides, works to-day by the light of past ages, and owes to his fellows and to future generations the obligation to use his talents to the utmost in forwarding the cause of truth in everything he undertakes; whilst the lower animals, having no such mission, act by instinct, the bee of to-day following the same laws as those of his species in all preceding generations.

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[1] Read before the Missouri Valley Veterinary Medical Association.

Few persons appreciate the importance of horseshoeing, while a small number tell us it is unnecessary. The value of horseshoeing depends upon the manner in which it is done. Very seldom does the owner of horses appreciate the quality of the work. As a rule, the price charged or the distance from forge to the stable regulate the choice of the farrier. Such matters should not be allowed to decide between one farrier and another. A bad workman may do an injury at one shoeing which would cost the owner of the horse more than would pay ten times over the difference between his charges and the higher price of a better man.

Shoeing is by no means the simple affair it appears to the non-professional mind. If there is one thing more than another which has a tendency to technology, it is the art of horseshoeing, for a shoer to have a knowledge of the structure and functions of the limb and foot, the preparation of the foot, the various kinds of shoes, to make fit and attach them properly, and then give a reason for his work is, I think, one of the finest examples of technology or "science with practice."

An art, therefore, which has so much influence for good or evil, so far as usefulness and comfort of the horse are concerned, surely deserves the serious study of all those who are interested in that noble animal. A good system, founded on the teachings of anatomy and physiology, and perfected by daily experience, must prove of immense benefit to horse and owner, while a bad system, conducted in ignorance or carelessness, cannot but bring about pain and speedy uselessness to the animal and loss to the owner.

The old proverb, that for the want of a nail the shoe was lost, and for the want of a shoe the horse was lost, and for the want of a horse the man was lost, has been illustrated times without number. Few persons, however, are aware of the terrible consequences which have more than once attended neglect in the shoeing of horses.

Napoleon's retreat from Moscow depended for most of its hardships and horrors on the want of proper shoeing. The horses could not keep their feet, and were unable to drag the guns and wagons, which had to be abandoned. During the Franco-Prussian war Bourbaki's retreat became a confused rout from a similar cause. In the Civil War we experienced many hardships and loss for the want of horseshoers and material. In the Philippines, the past season, our troops (one company of them) had to abandon their horses for the want of horseshoers.

History, though much debated, it is still uncertain to whom or even to what race were the first to shoe horses with nailed-on shoes. The exact time when shoes were applied to the horses' feet is not known. The Celts, however, are credited, especially by French investigators, with having employed nailed-on shoes before the opening of the Christian era, and having extended their use throughout Gaul, Germany, and England. The Gauls were the first to practice the art of horseshoeing. About the fifth century in Rome we find horseshoes which began to approximate to those used to-day.

William the Conqueror is said to have introduced the art of shoeing into England. He gave to Simon St. Liz, a Norman, the town of Northampton and the hundred of Falkley, valued at $176 per annum, to provide shoes for his horses; and Henry de Firrers, who also came over with him, he appointed superintendent of the shoers, whose descendants, the Earls of Firrers, have six black horseshoes on a silver ground in the quartering of their arms. Their Castellan, at Oakham, in Rutlandshire, the seat of this family, a singular and rather tyrannical custom long prevailed, has the privilege of demanding one of his horseshoes, unless he chose to redeem it by a fine, from every nobleman or baron of the kingdom on his first journey through the town. The shoes, together with the giver's name, are affixed to the door of the castle. This right is still practised.

The farriers of London, England, celebrate the 23d of November by drinking pearl, a mixture of ale, eggs, and spirits made hot, in memory of Old Clements, who was the first man to make a shoe and nail it on, and for all that I know the first horseshoer to strike not for wages, but for honor. During the building of the Tower of Babel the horses and mules became sore-footed, so they abandoned them. Necessity being the mother of invention, Old Clements invented horseshoeing, shod the horses and mules. It pleased the king (Nimrod) so much that he gave a grand banquet to his nobles. This displeased Old Clements, and he felt insulted and struck; the horses and mules became lame for the want of shoeing; work on the Tower was suspended to a certain extent. The king wanted to know the cause of this; was informed that Old Clements felt insulted and had struck. The king then gave a grander banquet than before in honor of Old Clements; had him sit on the right-hand side of him, and presented him with a white sheepskin apron, with gold tassels on the two lower corners, and that is the way we distinguish a farrier from a blacksmith when we meet him away from the forge with his apron on; only the corners are fringed instead of gold tassels.

The Patent Office has about two hundred horseshoes, and not one of them is of any practical use unless it be nailed over a barn door to keep the poor witches from entering, and good luck for the horse that it was used that way instead of torturing him by applying it to his foot. The horseshoers are not behind other trades in discoveries and inventions.

The ancients first used Spanish broom-corn plaited over the bottom of the foot, the ends carried up the leg, bound on with cords of raw-hide; next leather was used the same way, then leather with brass, or a kind of brass was fastened on the soles, made fast to the hoof by straps; next they fastened plates of metal to the hoof by straps. From that on they fastened the shoes on by nails. All kinds of material have been used for shoes. Gold, silver, bronze, brass, aluminum, cork, wood, straw, paper, rubber, gutta-percha, felt, cloth, horn, oakum, iron, and steel have been used either alone or in combination.

A study of the specimens surprises and somewhat lessens the self-esteem we may have indulged in at our progressiveness, for after all many of our supposed new ideas are only resurrections.

SOME OF THE DANGERS OF AN IMPURE MEAT-SUPPLY AND MILK-SUPPLY.[1]

BY W. H. DALRYMPLE, M.R.C.V.S.,
BATON ROUGE, LA.

(Concluded from page 264.)

IN order that I may not occupy too much time in discussing this subject, although it is one of intense moment, I will take the liberty of quoting a few statistics recently given in a valuable paper by an English medical officer of health, and which I trust may serve the purpose of emphasizing the fact that there is no lack of evidence of the causation of human tuberculosis by cow's milk. Among other things Dr. Harold Scurfield (the gentleman referred to), medical officer for Sunderland, a large town in the north of England, says: "There are two reasons why the eradication of bovine tuberculosis is desirable. First, in the interest of agricultural communities; and, second, because its eradication necessarily entails a large reduction in the prevalence of one of the most fatal diseases of childhood, namely, tuberculosis or consumption of the bowels."

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[1] Read before the Louisiana State Sanitary Association at Baton Rouge, June, 1899.

In enumerating some of the evidence as to the causation of human tuberculosis by cow's milk, Dr. Scurfield cites the following few striking features in the chain: (1) Tuberculosis in cattle and man is the same disease, and is caused by the entrance into and growth in the body of the tubercle bacillus. The entrance of the bacillus into the body is so rarely effected before birth that for all practical purposes it is true to say that every case of tuberculosis is due to infection. And only a day or two ago, at the tuberculosis congress held at Berlin, Professor Rudolph Virchow, in an address before that body, rejected the theory of hereditary tuberculosis. This doctrine, he declared, was contradicted by all his pathological researches. He said he had never found tuberculosis in unborn or new-born infants, though it may be contracted during the first day's existence. (2) Cows suffering from tuberculosis of the udder give milk containing tubercle bacilli. (3) Tuberculosis of the udder is not rare in cows, and milk, as ordinarily sold, often contains tubercle bacilli. Thus Bang, of Copenhagen, says: "In any large herd in which tuberculosis is rife, and which has tuberculosis of the udder, one will be certain to find one cow the milk of which contains tubercle bacilli."

Out of 144 samples of milk coming from Liverpool cow stables, four, or 2.8 per cent., were found to contain the germ of consumption, but of twenty-four samples of "country milk" taken at Liverpool railroad depots, seven, or 29 per cent., were found to contain the organism.

In some later experiments in Liverpool, twelve out of 228 samples of city milk (5.2 per cent.) were found to contain the germ, and nine out of sixty-seven samples of country milk or 13.4 per cent.

Similar results were obtained at Cambridge. In Manchester seventeen out of ninety-three samples of country milk were found to contain the bacillus. By permission of the farmers the city veterinary officer visited sixteen farms from which the milk came, and on fourteen of these farms he found at least one cow with tuberculosis of the udder.

(4) Animals such as calves, hogs, rabbits, guinea-pigs, cats, and dogs fed on milk from cows suffering from tuberculosis of the udder develop tuberculosis of the bowels. (5) Human beings contract consumption of the bowels just at the period of life when cow's milk forms the principal item in their diet. (6) The sanitary improvements of the last forty years have reduced the death-rate from tuberculosis of the lungs by 45 per cent., or nearly one-half.

During the same period the death-rate from consumption of the bowels among infants under one year old has increased by 27 per cent., and this increase has been coincident with an increase in the proportion of infants raised on the bottle instead of on their natural nutriment. Tuberculosis of the breast is rare in the human mother, but tuberculosis of the udder is comparatively common in the cow.

We have, then, to contemplate the suggestive fact that the transfer of the infant from the rarely tuberculous breast of the mother to the frequently tubercular udder of the cow has been coincident with an increase in the prevalence of tuberculosis of the bowels, and that this increase has taken place during a period when the prevalence of other forms of tuberculosis in the human being have been rapidly decreasing.

Such facts as these, and we could find plenty more evidence to back them up here in our own country, should impress themselves not only upon the minds of those who have charge of the health of our citizens, but on the citizens themselves, for, as I have previously stated, it is only by concerted effort that the necessity for such important reforms as indicated by these statements can be sufficiently appreciated or their achievement made an established fact.

How, then, are we to bring about the much-needed reforms and secure for our citizens a pure and wholesome meat-supply and milk-supply? The matter has received a great amount of attention and study by the leading sanitarians both of this country and of Europe, with the result that in the most progressive centres of population of both continents it has been found necessary, in order to obtain the greatest amount of success, to consolidate slaughter-houses into one or more—according to requirements—central abattoirs placed under municipal control, the dairies also supplying city populations under similar control, with inspection of both placed in the hands of an individual or individuals, as the requirements may demand, who has been specially trained for such work.

What would be the effect of such a system? it might be asked. We have but to look at the records of other cities that have adopted it to find that it has proved itself a boon to the consumer and a benefit to the vender. Those who are engaged in providing meat and milk for human consumption, and especially in our centres of population, are, generally speaking, citizens of the highest honor and integrity, and would not, if they were aware of it, place on the market for human food either meat or milk that they did not consider perfectly sound and nutritious; but for lack of the necessary pathological knowledge the purveyor of these articles is unable to identify conditions which would be at once observed by the trained eye of the expert, and known by him to be injurious. Besides, the former has, as a rule, little or no appreciation of the great importance from a public health stand-point of rigid sanitary conditions and surroundings, and even if he did he has not the facilities for such in the ordinary butcher-pen or the common cow stable or dairy. Nor does he realize the danger of the contamination of his products resulting from insanitation, whereas the expert, who has been trained in hygiene and sanitation, is at once familiar with the various agencies and pathological conditions that are likely to bring about disease. How much better and more satisfactory it must be for the butcher, who is an honorable man and not afraid to expose his methods of work or his wares, to have his work done in an abattoir fitted up with all the most modern improvements and appliances to ensure speed and cleanliness than to labor in a place the whereabouts of which can often be easily discovered without the aid of a guide; or the milk vender who is cognizant of the fact by actual test that his cows are free from tuberculosis, and that his milk has been handled under the most approved sanitary precautions and reaches the customer positively pure and wholesome. And how much more comfortable must be the feelings of the consumer who sits down with his family to his roast of beef or pork or other meat products, or his pitcher of milk, when he knows that they have been produced by animals that are not only free from disease but in a fit condition to slaughter for food or to yield milk for consumption, and that they have been handled with the greatest sanitary care; have passed before the scrutinizing eye of a competent inspector, and come to his table stamped with the mark of purity on them.

I have not the time on this occasion to go into the details with regard to the construction and working of a public abattoir or a meat-inspection and milk-inspection service under municipal control. My object at present is chiefly to set before you a few of the too-frequently overlooked dangers to public health, which frequently lurk in the flesh of some of the more important of our meat animals, and in the milk of our dairy herds, that you may the more fully appreciate the necessity for the inauguration of a system where it does not already exist that will ensure to the consumer these valuable food materials in an absolutely pure and wholesome condition.

It is only a matter of time when every city and town of any size in the country will have its public abattoir with its meat-inspection and milk-inspection under municipal control. Public opinion is fast being educated along this particular line; and when it becomes more generally known that some important diseases can be transmitted to human beings through the consumption of unsound meat and milk under the old and in many cases the present unsanitary system, and that such diseases can be positively prevented by adopting the new and more sanitary system, the latter is going to be demanded.

Outside of the city of New Orleans, which has had a meat-inspection and milk-inspection for several years, the city of Shreveport is taking the lead. She is now engaged, or is about to commence, in the erection of a modern building to be under the control of the City Board of Health, where all animals that are intended to supply meat to their citizens will have to be slaughtered and their flesh inspected before being allowed to be placed on the market as an article of human food. This will ensure to them a meat-supply that is not only free from disease but also a food that is nutritious and wholesome.

Why, I might ask, should our capital city be behind the city of Shreveport? Our citizens are quite as progressive, I hope, and I feel sure they are just as epicurean in their tastes. This subject should in reality enlist the serious consideration of the citizens of every community in the State; but it appears to me to be extremely opportune that we should devote to it special thought at the present time. We have in contemplation extensive improvements for our city along sanitary lines. We have just had the indorsement of our citizens to the imposition of a tax for the purpose of securing sufficient money to carry out these improvements.

Why not add to the list a public abattoir and the other necessaries required to ensure a meat-supply and milk-supply that would not only be pure and wholesome, but for quality, also, would be second to none in the country? It would be a lasting monument to the intelligence and progressiveness of the citizens of our town, and with the result that no one would suffer financially but all would benefit from the all-important stand-point of public health.

The successful use of carbolic acid in tetanus in the human family is attracting much attention in medical circles. Its favorable action in veterinary practice has attracted much attention for several years, and many veterinarians have reported successful results in a number of cases.

STATE WORK WITH INFECTIOUS DISEASES OF ANIMALS.[1]

BY M. H. REYNOLDS, M.D., V.M.,
ST. ANTHONY PARK, MINN.

(Concluded from page 273.)

What Other Public Authorities Are Doing. Pennsylvania tests cattle at the expense of the State, furnishing veterinarian and tuberculin. State pays partial valuation for condemned cattle. State Veterinarian reports that when this work was commenced three years ago the task seemed almost hopeless. Statistics show constant diminution of reacting cattle, and the inference seems reasonable that tuberculosis is less prevalent in that State than when the work began. Up to June 1, 1897, the average percentage had been 20.4. From this time until January, 1898, 13.73 per cent. During 1898, 14,437 cattle were tested in this way ; 1348 reacted —12.9 per cent.

Pennsylvania tests only upon application, and not only that but application must show reasonable evidence that tuberculosis exists in the herd. Their annual report indicates that applications are much more numerous than can be granted. The owner is required to submit reasons for making the examination. He must make application for test and agree to do all in his power to keep the herd free from tuberculosis in the future. Quite a different situation from what we have here in the West.

Pennsylvania prohibits the importation of dairy or breeding cattle except upon tuberculin-test. No compensation is allowed for cattle imported contrary to law.

Massachusetts is now appropriating about $75,000 annually for the work with infectious diseases, a very large proportion of which is used in the work with bovine tuberculosis. Pennsylvania has an annual appropriation of about $40,000 for dealing with infectious diseases of domestic animals. Of this appropriation a very large portion—about $28,000—is used for dealing with bovine tuberculosis.

Illinois has recently put into effect an order prohibiting the importation of untested cattle for breeding or dairy purposes. Iowa is making quite an active stir concerning this problem, although she may not take any radical step at this time. Yesterday a tuberculosis convention was called to order in Des Moines for the express purpose of discussing the problems connected with bovine tuberculosis and to recommend such measures as seem wise. Prominent speakers from various parts of the United States were on the programme. The State Veterinary Association of Iowa is in session to-day and to-morrow, and it is the expressed purpose of this Association to bring influence to bear upon the Legislature looking toward legislation similar to that in effect in other States.[1]

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[1] Presented at the annual meeting of the State Agricultural Society, at St. Paul, January 10 and 11, 1900.

In view of recent developments in certain of the Eastern States and among our neighboring States here in the West, it may possibly become necessary for Minnesota to take some radical action concerning the importation of dairy and breeding cattle. I have hitherto taken the position, so far as Minnesota was concerned, that so long as cattle in neighboring States were probably no worse affected with tuberculosis than our own we were not justified in prohibiting the importation of untested cattle. This proposition came up in Wisconsin something like a year ago, and I made a similar proposition to the Wisconsin representatives that as long as Wisconsin was no better in this respect than her neighboring States there would be nothing gained by such a measure. But this problem has assumed a different phase. When our neighboring States adopt measures similar to those now in force in Illinois, Minnesota will be compelled to do likewise or become a dumping-ground for tuberculous cattle. A considerable number of cattle, largely dairy cows, are shipped each year from this State to Illinois. Nearly all of these cattle are tested before shipment. The healthy cattle are shipped into Illinois, the tuberculous cattle are left on our hands. If dairy or breeding cattle are tested in Iowa with a view to shipping into Illinois, the same thing occurs; the healthy cattle are shipped into Illinois, the diseased cattle may be moved over the line into Minnesota.

The following table is taken from our Experiment Station *Bulletin*, No. 51, and is quite suggestive as to the influence concerning the prevalence of this disease among natives, high-grades, pure breds, city dairies, and in the various conditions of stables:

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[1] Since this paper was written Missouri has issued a proclamation similar to that now in force in Illinois.

TABLE XLVIII.—PREVALENCE ACCORDING TO CLASS AND CONDITION.

Table Summary: Greatest prevalence among "pure breds," "city dairies," "poor condition of stable," and "poor ventilation." Farm conditions—good stables and ventilation do not protect infection, however.[1]

No.	Class.	No of herds tested.	No. of animals tested.	No of reactions.	Per cent. tuberculous.
1	Natives	137	2839	223	7.8
2	High-grades	5	157	17	10.8
3	Pure breds	6	258	43	16.6
4	Farm herds	38 .	694	99	*14.2 (7.8)
5	City dairy herds	108	2736	284	10.4
6	In "good" general condition of stable	57	1370	139	*10 1 (6.8)
7	In "fair" condition of stables .	59	1140	83	7.28
8	In "poor" condition of stables .	32	864	165	19.1
9	With "good" ventilation . .	45	1011	90	*9.8 (5)
10	With "fair" ventilation . .	45	1087	67	6.16
11	With "poor" ventilation . . .	48	1210	201	16.6

This data was collected in the most impartial way that could be devised, and with the sole view of investigation. This showing is what any student of sanitary matters should expect. The mere fact that the percentage of tuberculosis is highest in pure-bred herds should not suggest that men should not breed pure-bred cattle. It only suggests that men should not establish herds upon tuberculous foundation. They should breed healthy pure-bred cattle, not tuberculous pure-bred cattle. The figures here given should be taken as percentages for certain classes, and not as representing the entire cattle stock of Minnesota.

During the past three months there have been tested in this State 2768 cattle of all kinds, of which 135 reacted and 25 were killed; an average of 5.1 reactions. But the majority of these were not breeding herds. All of the dairy and breeding herds belonging to State institutions in Minnesota are now being tested regularly, and the officers of these various institutions are now in sympathy with this movement, although it was rather difficult to get the work started.

A careful experiment which was conducted on a rather large scale by the Experiment Station several years ago demonstrated quite fully that the tuberculin test was practically without effect upon dairy cows in full flow of milk, or upon fattening steers, and the effect upon tuberculous cattle was favorable rather than otherwise.

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[1] Fifty-five of these tuberculous animals in each case—(groups 4, 6, and *9) were from the same two herds. Eliminating these two herds from the groups 4, 6, and 9, the percentages are reduced respectively to 7.8, 6.8, and 5.

I wish to suggest a conference committee, consisting of five representative breeders of the State Agricultural Society and Stock Breeders' Association, to confer with representatives of the State Board of Health and Experiment Station. Let representatives of these two societies be experienced breeders, men who are personally and financially interested in a proper and safe solution of the problem.

What will Minnesota do? What is the wish of the stockmen of Minnesota concerning this great problem? Is it worth our serious consideration? What will we do about it?

INFLUENZA.[1]

BY CHARLES WILLIAMS, V.M.D.,
PHILADELPHIA, PA.

SYNONYMS: Pink-eye, typhoid fever, epizoöty, bilious fever, and a number of names given to it by numerous writers on the Continent of Europe.

For our convenience we will allude to it as influenza.

Definition. Influenza is a contagious and infectious specific disease of the horse, ass, mule, and even of man, with alterations of the blood attended with more or less depression and stupefaction of brain and nervous system, and depression of the vital forces, with frequent complications of the important vascular organs, especially of the lungs, intestines, brain, and serous membranes, and the laminæ of the feet. One attack usually renders the animal immune to the disease for a longer or shorter period, but not always. This disease, under certain conditions of the atmosphere from unknown causes, may assume an epizoötic form or tendency, so that a whole neighborhood or even a country may be swept by its ravages in a few hours or days. The first description of this disease is said to have been made by Laurenteus Rusius, in A.D. 1301, when it spread over a considerable portion of Italy, causing great loss among the war horses of Rome. In 1648 it visited Germany in an epizoötic form, and spread from there to other parts of Europe. In 1711, under the name of "epidemica equorum," it followed the track of the great armies of Europe, causing great losses among the horses, while the rinderpest was scourging the cattle of the same regions. Thus we see that the awful business of war is and always has been productive of the greatest evils and of little good in comparison to the great devastations that follow in its wake.

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[1] Read before the Pennsylvania State Veterinary Medical Association, March 6, 1900.

In 1732 it is first mentioned in the British Isles, occurring in London and Southern countries of England, and was described by Gibson.

In 1758 Robert Whytt mentions the disease as devastating the horses in the north of Scotland. All through the eighteenth century it is mentioned in different parts of Europe.

In 1776 it first reached the shores of North America, but is not mentioned again until 1871 and 1872, when it swept the entire country from Canada south to Ohio, and then to the sea borders East and West. It now seems to be permanently rooted in our large cities, in such places as the shipping stables and markets where the green horses are handled and sold.

Etiology. As with many other contagious and infectious diseases one attack frequently renders the recovered subject immune for a variable length of time. The atmosphere is the most common carrier of the infection from the sick to the healthy animals, and may be carried to considerable distances. The contagion will remain in straw, bedding, and in the infected stable for some time. It is said water, even though running, may carry the infection. Dieckerhoff studied the disease in 1881 ; his experiments showed that the virus of influenza is excessively diffusible, and that it will spread rapidly and pass through ventilators or in any other way where a draught is created. He explains in this way the very irregular manner in which the disease attacks the horses in a stable. With all due respect to his opinions in the matter, your essayist holds to the opinion that it is the susceptible patient who first contracts the disease; the plethoric animal, or one that has rapidly gained flesh and fat, whose liver is possibly torpid, the bile ducts possibly a little clogged, etc., as horses that are fitted for market with little exercise, and again old, highly-fed workers that have not had any grain feed but the concentrated feeds, and hay year in and year out, these are the ones to take the disease, and these are the ones that take on the bilious type, and are often subject to such serious complications. A perfectly healthy animal, one in which every organ is performing its function properly, will be able (in my opinion) to throw off the infection and thus escape, even though in direct proximity to the disease.

Incubation. From five to seven days after a susceptible horse has been exposed to the disease he may appear in usual good health, when all at once, almost as though he were struck, he may show the signs of the disease, which may be at once very pronounced and cause much alarm, or it may start in a very mild form, such as a faint cough, animal not quite finishing feed, a slight elevation of temperature, with little or no alteration of pulse, which gradually progresses to the highest point, say 105° or 106°, and finally the pulse in sympathy running up to 56 or 60 or even 80 per minute; the latter is a cause of much uneasiness to the writer, especially about the fourth or fifth day. In the first case the fever may assume the highest form, the animal dull and dejected, not noticing passing objects. He frequently has rigors in croup and flank muscles. Yawning and grinding of the teeth, the latter symptoms showing there is severe gastric and hepatic derangement, and will indicate (as Huidekoper truly says) that a severe attack may be expected. The eyes become puffy, and tears run down over the cheeks. Animal seems to show great fatigue, frequently shifting from one leg to the other, the changing often attended with a cracking in the joints and tendons; if forced to move the animal will stagger and drag the limbs. The conjunctiva may be a bright pink or a deep saffron color, as also the lips. The appetite is variable. Some horses will keep on feeding through the attack when not complicated with bilious trouble, but when the latter is the permanent symptom the appetite is almost always wanting.

The limbs may begin to swell at the outset and become very much tumefied (usually in the simple and uncomplicated cases), or they may remain perfectly clean till after the subsidence of the former, when they will begin to swell until they reach the penis and under surface of the body. Usually after the temperature reaches its maximum (which may be at once or when the patient is first seen, or it may not be for a day or two), it remains stationary for a period of three to four days without much variation, when it may abate either gradually, say one or two degrees a day, or rapidly, almost as fast as it appeared, or in a few cases act intermittently for several days.

Course and Complication. The average duration of the disease is from six to ten days, in serious cases two to three weeks, and in benign cases three to six days. The fever subsides, the animal begins to take notice and start eating, the limbs may or may not become œdematous, and finally the mucous membranes clear up and the patient regains his strength and flesh.

The complications are: 1. Pneumonia with or without pleurisy.

2. Cardiac asthma. 3. Cerebritis. 4. Colliquative diarrhœa with death. 5. Laminitis.

Diagnosis. The diagnosis consists of or is based on continued high fever, great depression, color of mucous membranes with or without conjunctivitis, swollen legs.

Prognosis. According to Huidekoper, influenza is considered to be a very serious disease, many horses dying even with the best treatment, and is more fatal to the well bred and young. The disease seems to occur in a more serious form in well bred than in lymphatic animals; the fatalities vary in different epizoötics, and the disease also seems to expend its force, so to speak, and the mortality is less toward the last than at the beginning of the break. The great danger seems to be in the dreaded complications, and just so sure as there is one case of pneumonia in a stable just so surely will the following cases be complicated with this disease, which usually makes its appearance about the fourth or fifth day. Other writers—Robertson, Friedberger and Fröhner, and Williams—say or consider it as a very mild or slightly serious disease. While I think these writers are only partially right, for, like the grip in the human race, it is much more mild at one time than another, and as I have before stated it is greatly dependent on the condition of the animal contracting the disease.

The pathology of the disease I will leave, and refer you to the able Continental writers.

Treatment. The treatment I will divide into two classes: 1. Curative. 2. Preventive.

The curative treatment is to guide the animal through the regular course of the disease and watch for and combat or treat any complications as they threaten to arise.

And I now come to the important part of my essay, namely, the preventive treatment or inoculation for immunizing our animals, especially in an outbreak of the disease. H. K. Mulford & Co., Philadelphia, are, as you all know, manufacturing chemists, and among their numerous products of different antitoxins have for some time produced an antitoxin which when injected into a child suffering with that dread disease diphtheria was capable of arresting the disease to a marked degree; it was also found that by injecting it into fowls suffering with roup they rapidly recovered, and it is thought by some who have tried it that it has been efficacious in distemper in dogs. Well, this then led to some experiment or at least some clinical testing of the serum as a preventive and curative treatment among the recently purchased horses coming from the West and passing through our West Philadelphia stables, as you all know a large percentage of these horses not only get very sick and some die and many more only recover after some time of nursing and care. It was, therefore, decided to test the serum to some extent in this line, and my friend, Dr. George Fuller, was given an opportunity to test it, and the results of his use of said serum seem to show that a green horse or an animal exposed to the infection of influenza, if not already sick, if injected with 20 c.c. of what Mulford calls his distemper antitoxin will not contract the disease in nearly every case, but if it should contract the disease it usually runs the prescribed course, but in a much milder form than others not inoculated, and usually if inoculated at the start, say when the temperature has risen to 102° F., the horse will usually recover at once, and the fever disappear. In the beginning of December or in the latter part of November, 1899, a single horse in the livery stable where I board my horses became affected with this disease, and gradually contracted more or less of a bronchitis, but otherwise ran a regular course and recovered. He had been well about a week or ten days when my attention was called to a black gelding, ten or twelve years old, which had been purchased about a month before (not green) in poor condition, which was a good feeder and laid on flesh rapidly; he became affected, after a while showed signs of pneumonia, and died of heart failure. His mate then became affected, and the disease seemed to have set in in earnest, till we had six or seven affected at one time, and they seemed to be taken down at the rate of one or two a day. I had learned of antitoxin as a curative agent, and began its use at once, and called Dr. Fuller on the 'phone, and asked his experience, and was advised to inoculate the well horses in the stable to stop the spread of the disease, which I did at once, and there were no more cases, with the exception of one which did not come on till a week or so after, and he had it only in the regulation form, and yielded without complications, while all the horses but one that contracted it after No. 2 had a complication of pneumonia. There was a second outbreak in another stable where I attended at the same time as the foregoing, and I inoculated somewhere about twenty head in it, and Dr. Fuller some others. Several of these cases started with a temperature of about 102°, but all dropped back to normal, went on working, and there was no more spread of the disease. I did some others—I might mention a green horse—which I found had a temperature of 102° F. in a small stable, with its mate; both were inoculated and recovered at once and went on working. In all I believe I inoculated about forty-seven horses in seven days, and in the lot there was only one that contracted the disease. The peculiarity of this outbreak in our stable was that many of the cases started with slight elevation of temperature, and gradually increased or remained with 2° or 3° of fever till four or five days, when pneumonia would set in and the temperature run up to 105.6°. From the above I am led to believe that as a preventive the serum seems to render an animal immune. As a curative agent I fear it will give little results, as the germs multiply so rapidly and produce so much toxin that we cannot get enough serum into the system to counteract its ravages.

REPORTS OF CASES.

A NEW TREATMENT FOR FISTULÆ.

By W. T. Campbell, V.S.,
CINCINNATI, O.

It has been a long-felt want among veterinarians to find some remedy which will be useful in cases of fistula that would be of a less irritating nature than our caustics and still have a stronger action than our mild antiseptics. Being in a region where fistula is very common, I came in contact with a great many cases, and as a result have tried every treatment that I could possibly think of, and cannot say that I have met with great success.

Having by a mere accident come in possession of protargol, I gave it a trial, and found it to be just the thing for such cases. It is a yellowish light powder, soluble in water, and is a derivative of silver. Although not as irritating as the nitrate, it still has the same action as a bactericide and antiseptic.

As it may be interesting to some of the readers, I will describe a few cases in which I used it and show how it acts.

On January 24th I was called to see a roan mare, four years old, with a very bad case of fistulous withers, having been caused by a heavy team saddle, and had been standing about two months. The withers were swollen on each side to the size of an ordinary ham, with an ugly running sore on the top, from which came a very fetid discharge.

After making an opening at the bottom I inserted a seton and a few plugs of bichloride of mercury and nitrate of silver, which gave me an abundant discharge of pus in about ten hours. About this time I came to the conclusion I would use my protargol, and on the following day I started to syringe the wound with a solution as follows: Protargol, 10 parts; glycerin, 50 parts; water, 40 parts. This was injected three times a day, and hot woollen rags were laid over the withers every hour. On February 1st the swelling had gone down considerable, and the discharge was less fetid. On the 10th she was able to drive, and on the 15th was entirely well, and as yet there has been no recurrence.

A gray horse, belonging to a coal firm, came to the hospital with fistula which seemed to be one mass of pipes. I made an opening at the bottom, and into this I injected the above solution, and was surprised at the amount of pus it brought out. I continued this three times a day for three weeks, and its effects were wonderful, as it dried up the fistula and healed the wound in just that time.

Although not generally classed as fistula, I consider a quittor just the same, and, meeting with good success in a late case, I shall add it to the list.

On February 1st I was called to see a horse which had suffered from a moist corn, and as a result of this had opened at the top of the foot, from which the flow of pus was constant. I removed the shoe and pared out the corn, giving it a free opening, after which I ran a seton from the bottom to the top of the foot. I then gave it a covering of the powdered protargol, and injected the solution in from the bottom three times a day. Under this treatment he progressed nicely, and in three weeks was entirely well. In all these cases the regular course of internal medicines was administered, and all I claim of interest is the action of this solution on fistulous tracts, and to those who have such cases it would be well to try it, as in every case in which I have used it my success was greater and cure more permanent and in less time than any other treatment I have ever used.

DIGESTIVE STASIS OF THE BOWELS IN THE COW.

By Herbert Hoopes, V.M.D.,
BYNUM, MD.

I wish to report a recent case of mine and see if my professional brethren can give me any enlightenment on it, as it makes the third case of its kind we have had in our herd, and have not been able to give relief at any time, and as our cows are valuable it is of importance to us as breeders if to no others. One was a registered Jersey cow, just past four years old, in good working order, and had been doing, since calving in June, 1899, a good business at the pail, and was about five months advanced in pregnancy. On Sunday night, February 4th, we had a very heavy rain storm, and during the night the water worked its way through the barn wall, and filled the gutters of one stable, and this cow lay back as far as the stanchion would allow, and then used her tail, and by morning was wet from head to foot, and refused to eat her feed that morning; in fact, I believe had not cleaned up her Sunday night's mess.

I was away all day Monday, and did not learn of her condition until Tuesday morning, when I found her still refusing to eat, occasionally taking a swallow of water; rumination ceased, peristalsis ceased, temperature normal, heart full, strong, and regular, and respiration normal; but the cow seemed to have slight colicky pains, moving from one hind foot to the other and backward and forward.

My diagnosis was gastro-intestinal paralysis. Tuesday morning I gave strychnine sulphate, three-quarters of a grain, hypodermatically, and a drench of one and one-half pounds of magnesium sulphate, with two ounces of pulverized African ginger, and as no result was apparent by 4.30 P.M., gave three grains of pilocarpine and one and three-quarter grains of eserine salicylate, and at 6 P.M. three-quarters grains of strychnine sulphate, and before going to bed gave tr. digitalis, ʒj; tr. nucis vomicæ, ʒss; alcoholis ethylici, ʒj. Milk, q. s., add for drench.

The eserine and pilocarpine produced profused salivation and trembling of the muscles of the abdomen and posterior extremities, and a gurgling sound in the rumen and intestines, but apparently no peristalsis.

Continued twice daily with one grain of strychnine sulphate and once daily with cardiac stimulants, but could see little change until about Friday, when noticed that the heart was losing its force and eyes began to have a sunken appearance.

As a last resort, on Friday afternoon I gave hypodermatically three grains of pilocarpine and two and a quarter grains of eserine, but got no better results than at first.

The cow was able to get up until Sunday night, February 11th, and died Monday morning, February 12th.

Aside from the above treatment I used a funnel and about five feet of rubber hose, and gave injection (on Tuesday and Thursday) of warm water containing stimulants, and worked the tube in four feet and used two and one-half gallons of water at one time. Post-mortem revealed that there was no obstruction at any place along the alimentary canal, and that the entire contents of the four stomachs and the intestines was in a semifluid state; the mucus in the lower bowel had become black and partially decomposed, and under the stimulus of the last dose of eserine some of this mucus had been voided.

The cow was apparently healthy in every other respect. Temperature had remained normal until Sunday afternoon, February 11th, when it gradually went below normal.

The other two cases occurred just about one year ago, while I was at school, but from the history they were very similar, except they had no wetting or shock of any kind to bring on the condition, if this was the cause of it.

All three were getting the regular herd feed. If the profession can enlighten me upon this subject the same will be gratefully received.

I. TENDO-VAGINITIS OF THE METACARPO-PHALANGEAL SHEATH. II. PAINT (LEAD) POISONING IN COWS.

By L. Van Es, M.D., V.S.,
MOBILE, ALA.

Case I.—This case occurred in a young mare of moderate size and value, and presented itself for treatment about one year ago.

Examination revealed a bilateral fluctuating swelling just above the fetlock. Considerable tenderness on pressure and a pronounced supporting leg lameness.

My diagnosis was tendo-vaginitis of the metacarpo-phalangeal sheath.

At first my treatment consisted of cold applications, alternated by the use of a rubber bandage. The slight improvement brought about by this treatment was not permanent, and the animal was soon back for treatment.

The enlargement having increased to a considerable extent, I now tried to get relief from aspirating, again followed by the applications of the rubber bandage, all to no avail.

As the animal returned lamer than ever, I used a smart vesicant, but with no material result. After the skin had recovered from the effect of the blistering I applied the thermocautery, drawing several oblique lines over the affected part.

No improvement, however, followed this treatment. I now lost sight of the mare for some time, but finally she was brought to me again by a different owner.

The tendon sheath was now enormously enlarged, presenting a "doughy" sensation on pressure. The enlargement, which at first was bilateral, now extended around posteriorly. The animal was extremely lame, and did not attempt to bear weight on the leg.

I now began to consider the advisability of a median neurectomy, but as the enlargement was of such proportions as to constitute quite an impediment to locomotion, I concluded to open the sheath, to remove its contents, and, if practicable, to remove also the diseased part of the sheath. The owner consented readily to any operative procedure I might choose.

The leg was prepared for operation as follows: The hair was closely clipped and scrubbed with brush and soap, washed with hot water, and rinsed with methyl alcohol. The leg was now wrapped in absorbent cotton, bandaged, and this whole dressing kept saturated with a 1 per cent. solution of bichloride of mercury until the following day, when the operation took place. The patient was secured on the operating-table, the dressings removed, and the parts again subjected to an irrigation with a sublimate solution.

I now made an incision, about five inches in length, in the median line on the posterior surface of the limb.

This incision opened the enlarged sheath, which was found to be tightly filled with a large fibrinous clot and a serohemorrhagic exudate, which I removed by scooping out the cavity with my index finger. The clot and liquid exudate about filled a one-quart jar.

The sheath itself was quite thickened and infiltrated with serum.

The removal of the sheath was done by means of a sharp curette, and included everything between its upper limit down as far as the sesamoid pulley or gliding surface, where no evidence of disease was noticeable.

The bleeding was controlled by pressure, the cavity irrigated with a bichloride of mercury solution and packed with sterile iodoform gauze. The edges of the wound were approximated with heavy silk stitches, the parts covered with a layer of gauze, wrapped in absorbent cotton, and the whole enclosed in a neat spica bandage. This first dressing remained until the bandage became stained with wound secretion (three days), when it was removed.

The wound was again irrigated with a sublimate solution and dressed as before.

This dressing was repeated every four or five days, except the packing of the cavity, which was discontinued after the third dressing. The wound healed rapidly, and after two weeks the lameness commenced to improve. Five weeks after the operation the patient was discharged, and as no lameness remained the median neurectomy had not to be resorted to.

There remained somewhat of an enlargement, but it did not cause any trouble to the animal and only slightly disfigured the limb.

CASE II.—On a Friday morning the owner of two Jersey cows and one yearling requested me to attend one of his cows, which had on that morning refused her food and showed other signs of sickness.

On examination the cow presented some nervousness, slight abdominal pain (shown by periodical uneasiness and kicking against her abdomen), muscular twitching at various parts, a constant grinding with her teeth, and frothing from the mouth. Her pulse was small and rapid, temperature and respirations normal, evacuation from the bowels of normal quantity and consistency, but of an extremely dark color.

As far as I could learn from the attendant, the animal had passed urine as usual. The reaction of the pupil to light was normal. As for some time I had seen painters working about the house, I asked if it could have been possible for this cow to have licked paint or have eaten something with paint on it. Even on close questioning this was answered in the negative.

Being thus kept in the dark about my case, I put her on symptomatic treatment, consisting of a mixture of chloral hydrate and bromide of potassium, dissolved in water. I gave this in order to relieve the nervous symptoms and the muscular twitchings.

On my second visit (in the afternoon of the same day), I found my patient in the same condition, but evacuations from the bowels had ceased since morning.

I prescribed one pound of Glauber salts and continued the other treatment. I again questioned the attendant about the paint, but with the same result.

On the following morning (Saturday) the cow did not show any marked change, although the nervousness had largely subsided and the muscular twitchings were now confined to a jerky movement of the abdominal muscles. Constipation persisted, with the exception of two or three scant and solid evacuations.

After examining my patient my attention was called to the other cow and the yearling. Much to my surprise those animals presented about the same symptoms as cow No. 1. The yearling, in addition to these, proved to be blind, with a dilated pupil, totally indifferent to light.

I now became more than ever suspicious of lead-poison, and informed the owner that in spite of the apparent impossibility of the cows being able to get paint, I was reasonably certain that they had got some, nevertheless. I gave each cow and the yearling a good dose of sodium sulphate, and put them on the chloral and bromide mixture.

My afternoon visit disclosed no change in the patients.

On Sunday morning, while being given some oil to relieve the constipation, cow No. 1 suddenly collapsed and died.

Through an unavoidable circumstance I was deprived of the opportunity of an autopsy in this case.

The remaining animals were also given some oil, and by evening they had copious, soft discharges from the bowels.

Their nervous symptoms having become milder, I ordered the sedative to be given at greater intervals.

During the following days most symptoms disappeared, except a total loss of appetite in both animals and the amblyopia and chorea-like movements of the anterior limbs of the yearling.

Those movements, especially noticeable immediately after rising, consisted of a jerky, swinging movement of the entire front limbs alternately, the movements soon ceasing and some stiffness remaining.

The cow gradually began to show signs of improvement, the appetite returned; after administration of a bitter stomachic the nervous symptoms disappeared, and within a short time she was discharged from treatment.

The yearling lost her involuntary muscular movements by degrees, and in the course of several days regained her appetite. As the amblyopia, however, persisted I put her on daily doses of iodide of potassium and strychnine, which had little or no influence on this condition.

During one of my visits I took occasion to walk into the cow lot and to examine a pile of rubbish which I found there. In this pile I found several rags which had been used by the painters to wipe some of their utensils or work, and were saturated with red paint. This discovery satisfied me as to the true nature of my cases.

The condition of the calf remained the same until about three weeks after the first signs of sickness presented themselves, when she was suddenly taken by a hemiplegia and died the following day.

On the post-mortem examination the following conditions presented themselves: A marked pallor of the skeletal muscles, small hemorrhages in the subcutaneous connective tissue and in the abdominal viscera. Digestive organs without any change; their contents normal in quantity, consistency, and color.

Liver of a grayish-white color, normal in size, very soft and doughy, leaving, on incision, fat globules on the knife.

Spleen normal in appearance.

Kidneys somewhat smaller than I would consider normal, white in color, very soft and friable, giving the impression of having undergone a mucoid degeneration. On section small hemorrhages are to be noticed in the cortical portion.

Bladder about half-full of highly colored limpid urine, which, much to my regret, I neglected to analyze.

Lungs normal; heart very pale (fatty degeneration), but otherwise normal. The larger bloodvessels showed no change. On opening the cranial cavity I found numerous small hemorrhagic spots in the meninges, while in the brain substance there were noticeable only a small number of exceedingly small hemorrhages. Owing to lack of time I failed to take out the spinal cord.

Specimens taken from the cerebrum, kidneys, and liver showed on microscopical examination the following lesions: Sections from the cerebral cortex and stained according to Nissl's method showed the cells to have taken the stain very diffusely; no differentiation of nucleus, nucleolus, or pigment body had taken place. I am, however, not prepared to say whether this condition was due to a pathological change in the neurons or whether this was due to a slight deviation from the method as laid down by Nissl. This deviation consisted in placing the fresh specimen in a formalin solution instead of strong alcohol, the formalin being the only fixing agent I happened to have along.

Liver and kidney specimens were treated as follows: Fixed in formalin dehydrated in 60, 80, and 96 per cent. alcohol, embedded in collodion, sections cut with microtome, stained in alum, carmine, cleared with carbol xylol, and mounted in Canada balsam.

Sections of liver, when examined with the naked eye or a low power objective (2/III), present a moderate number of highly stained specks or patches, very similar but smaller than those seen in miliary tubercle. When studied under a higher power (1/IV) these patches prove to be masses of leucocytes in the interlobular tissue, indicating an interstitial hepatitis.

At various points I also noticed a beginning of an interlobular connective tissue proliferation. The walls of the interlobular vessels are more or less sclerotic. The hepatic cells show different stages of a granular and fatty degeneration, but not to such an extent as the gross appearance of the organ would warrant one to anticipate.

The nuclei, although granular in appearance, still have retained their affinity for the stains to a greater or less degree At some points, however, I notice small patches where all cellular structure has disappeared, nothing remaining but a granular or fatty débris.

Sections of kidney, stained and mounted as indicated above, give a picture of a pronounced parenchymaotus degeneration. Especially in the cortical portion of the organ one can only with the greatest difficulty find sections of tubules in which the epithelium has remained intact so as to show cellular structure. Such cells, however, also show the beginning of degenerative changes.

In almost all the convoluted tubules the epithelium has completely broken down, the débris filling the lumen, and nothing remaining but the thin casement membrane.

In a great number of places an interstitial inflammation is to be noticed and shown by the presence of large numbers of leucocytes, while red cells are found scattered in the interstitial tissue; at some places small hemorrhages can be seen.

The changes in the glomeruli are principally confined to a thickening in Bowman's capsule, the tuft of bloodvessels having as a whole remained intact.

The tubules in the medullary part of the organ seemed to have escaped the destructive changes seen elsewhere, although the epithelium has a slightly cloudy and granular appearance.

The bloodvessels show a marked thickening of their tunica media and a softening or breaking down of the intima. I remember of seeing in one place a complete detachment of the inner coat from the middle one, but I am inclined to take this for an artefact.

Does it not sound inconsistent for a man with horse sense to purchase an automobile.—*Rural New Yorker.*

An outbreak of foot-and-mouth disease among the livestock of Argentina has caused the English Board of Agriculture to prohibit the importation of South American animals into English ports.

DEPARTMENT OF CANINE AND FELINE MEDICINE AND SURGERY.

A PECULIAR CASE OF FUNCTIONAL DERANGEMENT OF THE SKIN IN A DOG, MANIFESTED BY HEMORRHAGES AND ABNORMAL SECRETIONS, FOLLOWED BY DEATH FROM ACUTE INFECTION.

By Cecil French, D.V.S.,
WASHINGTON, D. C.

Subject: Smooth-coated mongrel bitch, weighing about fifteen pounds, and aged about thirteen years at the time of her death, in the autumn of 1898.

This animal enjoyed good health until the year 1895, when, according to the owner's statement, symptoms of bloating, ravenous appetite, and unquenchable thirst appeared. Vomiting frequently occurred when she was permitted to indulge her appetite. The inordinate appetite for food and drink continued until three or four days before dissolution. Constant micturition of pale urine was also a prominent symptom.

In other respects nothing seemed amiss until the summer of 1898, when the owner noticed the sudden appearance of rather profuse cutaneous hemorrhages. The exuded blood dried on the coat in the form of little dark-brownish grits. When the animal was washed these grits dissolved and transmitted to the water the color and odor of blood. I may mention that the owner was averse to submitting the animal to any treatment, and I was only allowed the opportunity of observing the appearance of the blood coagula on one occasion just prior to washing. I secured some of the material and submitted it to an expert for spectroscopic analysis, who confirmed the opinion I held as to its character.

While washing the animal one day, some two months subsequent to the first appearance of the bleeding, the owner noticed that pressure on the skin caused the exudation of a secretion which was described to me as being of paste-like consistence and spiral worm-like form, about an inch in length and as thick as a darning needle (abnormal sebum?). The orifices from which the secretion could be forced were quite numerous, and the latter exhibited a regularity of shape which suggested a tubular origin. In fact, it closely resembled the form artists' oil-paint assumes on being squeezed out of the tubes in which it is kept. It sank to the bottom of the wash-tub without showing any tendency to dissolve. Scabs and crusts were forming during this period. When the same peeled off the hair came with them, and failed to grow again, so that latterly the animal was almost entirely denuded of hair.

About the beginning of December the manifestations of skin trouble ceased. She continued to grow feeble, but without showing any sign of emaciation, until during the last days of February she suddenly went all to pieces and died on the 4th of March. Toward the end the fecal discharges were very loose and fetid.

I was permitted to make an examination after death, and observed the following conditions present:

Small and *large gut* much inflamed and ulcerated. Several well-developed tapeworms present.

Liver rough on surface and peculiarly mottled, the mottling extending to the tissue within. Gall-bladder empty.

Spleen shrunken and mottled at each extremity like the liver.

Kidneys anæmic. Urine from the bladder contained albumin, but no sugar.

Heart greatly enlarged.

The microscope demonstrated the presence in the intestine, liver, and spleen of a microörganism of diplococcus form.

I submitted sections of the diseased organs as well as agar cultures from the same to Dr. Adami, of the McGill Pathological Laboratory, and received from him the following remarks:

"Going over your material I find it interesting so far as regards points on which I am at present working, more especially in connection with the liver in the case. This shows a very extreme condition of development of focal necrosis. I have never seen so extreme a condition in man, save in rare cases of eclampsia in connection with childbirth. The condition has been evidently of some days' duration, certainly not of months or years. One notes in parts irregular small areas in which the liver-tissue does not stain, but the cells are still recognizable by their outlines; here evidently the necrosis has been very recent. But cheek-by-jowl with these are other areas of about the same size, densely infiltrated with small round cells; this is a late stage in which there has been invasion of the necrotic areas by leucocytes; the organ further shows distinct congestion. The skin is normal, though the relative absence of hair follicles is rather striking. I make out in it no special indications of inflammatory change; if anything, it is atrophied rather than hypertrophied. The microörganism in every respect conforms to the cultural characteristics of the colon bacillus. It is not at all surprising that with enteritis you find the colon bacillus in various organs, more especially in the liver and spleen; whether that has been the cause of the condition seen in the liver I dare not say. It might be. In other animals it is unusual to get so extreme a condition. I have stained sections of the liver with carbol thionin, and can recognize none of the ordinary bacteria, though there are minute diplococcus forms which are possibly colon bacilli undergoing destruction. I may further add that the condition of the liver is, we may almost certainly say, infective, for it is in infectious diseases such as typhoid and diphtheria that we most frequently meet this condition. One thing is clear, that the condition is a recent one. There is no evidence of its being chronic, and as a consequence we may say that the enteritis and the lesions which I have described in connection with the liver have no clear relationship to the cutaneous hemorrhages and earlier disturbances, though of course an animal in such bad health might be predisposed to enteritis and allied conditons."

From a consideration of the early symptoms in this case, it would appear that the animal became infected with tapeworm at the outset. The bloating and inordinate appetite would account for this. But can we attribute to the action of the worms the diabetes which seems to have been present? We know that tapeworm infestation will produce remote effects on the system, possibly through reflex nervous influence, or absorption of the excretory products of the worms or other bodies resulting from or accompanying disordered digestion. On more than one occasion I have observed eruptive disorders of the skin to disappear on eradication of tapeworm, which would seem to indicate that they depended on the presence of the latter in the intestinal canal. But in this case we have something more than a mere eruption, evidently a disordered glandular function. Some of the greatest exponents of the physiological and pathological workings of the nervous system might not deem it unreasonable to lay the blame of all this cutaneous disturbance to reflex impulses.

With regard to the cutaneous hemorrhages, I have since noticed the same condition only in much milder form in a case of fatal distemper (nervous form). The owner, a lady, drew my attention to it by showing me the little coagulated blood grits which she had combed out of the dog's hair every morning while he was in a prostrated condition. It would appear during the night, and on dissolving it in water emitted the odor of blood.

The enteric infection could, of course, be ascribed to the damage done by the worms to the wall of the bowel, and this is what probably killed the animal.

ABSTRACTS FROM FOREIGN JOURNALS.

PASSAGE OF THE BACILLUS OF KOCH INTO THE MILK OF A TUBERCULOUS WOMAN. By Drs. H. Roger and M. Garnier. Translated from the *Comptes Rendus de la Société de Biologie*, vol. lii., No. 8, March 2, 1900. (From the Laboratory of the State Live-stock Sanitary Board of Pennsylvania.) The transmission of tuberculosis by milk has been studied especially in the bovine species, the importance of cow's milk as a food product leading authors to investigate whether or not this secretion could contain the bacillus of Koch. It was soon recognized that the passage of the bacillus into the milk took place quite frequently, even in the absence of mammary tubercles. If a cow is at all tuberculous her milk should be considered suspicious.

It is generally admitted that these results do not apply to the human race, and that the milk of tuberculous women never contains the bacilli.

Escherich, in researches now old, examined the milk of women with tuberculosis of the lungs without ever finding the microörganisms, but it seems that he made no inoculations. Fede, in 1892, studied the question in a more thorough manner. He injected the milk of tuberculous women into rabbits and guinea-pigs subcutaneously, intraperitoneally, or into the anterior chamber of the eye; never did he observe the development of tubercles. These results have been confirmed by Bonis. Bang has never obtained positive results by inoculation.

We have observed a fact which contradicts the classic opinion and proves that the milk of phthisical women may sometimes be virulent. A woman, aged thirty-four years, entered the hospital February 16, 1899, on account of a tuberculous pharyngitis. Her general condition at this time was fairly satisfactory, but besides the pharyngeal lesion albuminuria was discovered, and auscultation revealed induration at the apex of the left lung. The patient was pregnant and near her term; delivery took place under good conditions on March 7th following. From this moment the symptoms grew worse, the pulmonary lesions increased rapidly, and ten days after delivery the existence of a cavity at the summit of the left lung was determined. Then the general condition grew more and more bad, the fever was higher, and the woman died on March 24th, seventeen days after her confinement. At the autopsy advanced tuberculous lesions were found in the summits of both lungs; the apex of the left contained a large cavity; the entire pulmonary parenchyma was studded with gray granulations, as were also the liver, the kidneys, and the thyroid gland.

The baby born at term weighed 2685 grammes. Two days after birth it showed jaundice, then a green diarrhœa set in, followed by an œdema, hard, most marked in the feet and hands, which soon extended up the legs and thighs. The baby had from the outset been fed from the bottle, but seeing it about to perish the mother wished to nurse it, so from March 10th to 12th she gave it the breast, but the aggravation of her condition did not permit of its continuance. Fed on the bottle the child survived six weeks. Its weight, taken regularly every three days, underwent remarkable oscillations; it reached 2950 grammes on April 9th, but soon fell to 2620, again reached 2900, and finally fell to 2330 on April 25th, the eve of its death. At the autopsy numerous granulations were found in the liver, the spleen, the kidneys, the mesenteric glands.

Microscopical examination of sections of the liver showed typical tuberculous granulations in which the bacillus of Koch could be stained.

On March 11th, four days after confinement, two guinea-pigs had been inoculated with milk drawn aseptically from the mother's breast. The first pig, weighing 440 grammes, received 4 cubic centimetres of milk under the skin; only 2 cubic centimetres were injected into the peritoneal cavity of the second, which weighed 525 grammes. The first died very much emaciated on April 14th; it showed typical lesions of generalized tuberculosis; the liver and spleen were filled with tubercles; the lungs were studded with gray granulations. The other pig survived. On April 21st it weighed 565 grammes; June 14th its weight reached 650 grammes, but the glands of the groin were found to be hypertrophied. It was killed on January 28th last, weighing then 630 grammes, and its condition was excellent. At the autopsy a fibrous peritonitis was found corresponding to the point of inoculation; the coils of intestines were adherent to each other and to the lateral wall of the abdomen; the posterior wall was free; the omentum was large and retracted and without visible tubercles. The rest of the abdomen did not show any lesions. The surface of the liver was dotted with depressed points resembling cicatrices; the spleen appeared healthy; the suprarenal capsules were enlarged. Microscopical examination of the liver, the spleen, the thyroid gland and an hypertrophied gland found in the groin of the side opposite to the peritonitis showed neither tuberculous granulations nor sclerous changes; finally, the search for the bacillus both in sections and in the juice of the gland taken at the autopsy was negative.

Of our two guinea-pigs only one then became tuberculous, the one which had received the larger dose of milk; in this animal tuberculosis developed according to its usual method, and caused death in thirty-three days.

The other, which had received only one-half the quantity, survived, and appeared to be in excellent condition when killed, more than ten months after the inoculation. However, it was not entirely uninjured; the milk injected had not proved to be an entirely innocuous fluid, and the fibrous peritonitis which had developed at the point of inoculation gave evidence of a pathological process. This was not confined entirely to the peritoneum; an hypertrophied gland in the groin and cicatrices on the surface of the liver showed that there had been an attempt at generalization. The history of the first pig enabled us to explain the lesions found in the second. In the first case the quantity of bacilli injected was great enough to overcome the resistance of the animal, and the tuberculosis became generalized. In the second, on the contrary, the dose injected having been less, the animal overcame the infection. It recovered from the lesions produced, and we found only harmless cicatrices without any characteristic features.

The milk which we injected therefore contained bacilli, and was capable of transmitting tuberculosis. The child, having taken the milk of the mother for two days, could have been infected by this alone. Let us note that it died only twelve days after the first pig, which was injected four days after the birth of the infant. It is certain that besides the nursing the child was exposed to other sources of infection, for leaving out of consideration a possible intra-uterine contagion we must remember that the mother had a pharyngeal ulceration, and that bacilli were abundant in her mouth. However, since the autopsy showed that the lesions predominated in the mesenteric glands, the liver and the spleen, it is probable that the digestive tube was the principal if not the only port of entry.

The milk of a tuberculous woman can, therefore, serve as a vehicle for the bacillus of Koch, even in the absence of any tuberculous lesions of the mammary glands that can be detected clinically.

RABIFORM SYMPTOMS DUE TO SPIROPTERA. Translated from *Recueil de Méd. Vét.*, March 30, 1900, vol. vii., No. 6, Series

viii. At a meeting of La Société Centrale de Médccine Vétérinaire, on March 8, 1900, Monod, military veterinarian at Hanoi, Tonkin, presented notes of an interesting case. On January 3, 1900, the cadaver of a dog was brought to him for examination. The animal was of notably good disposition, but after several days of dulness had, in December, bitten his owner, then a boy, who attempted to tie him up, and another dog in the same house; and finally he attacked a person who was fortunately protected from injury by his clothing. Soon after tremors of the hind-quarters were noticed, followed by complete paralysis. He had refused all nourishment for twenty-four hours, and was found dead in the morning where he was confined.

At the autopsy the mouth was found filled with bloody saliva, the tongue was cut by the teeth, the stomach empty, but acutely congested and showing punctate hemorrhages. Similar lesions were found along the intestine, and also, floating in a blackish and disgusting liquid, were numerous spiroptera, hairs swallowed by the animal in licking itself, and bits of wood. In the œsophagus, 5 or 6 centimetres from the stomach, a small opening was seen, from which emerged half of a spiroptera, the other part remaining in a canal which communicated with a voluminous tumor containing numbers of the parasites of all sizes.

Several rabbits were inoculated with the medulla of the dog, and have remained well up to the 26th, from which it is concluded that the dog did not suffer from rabies in spite of his alarming symptoms, which must be attributed entirely to the tumor of spiroptera.

In the discussion, Raillet said that as early as 1830 Warren had noted the presence of the spiroptera sanguinolenta in dogs supposed to have died of rabies in the Island of Malta. In 1853 Rangé wrote: "As the result of many observations, it appears that spiroptera in the œsophagus of dogs may cause symptoms entirely analogous to those of rabies." This observation may be explained by the fact that in making post-mortems on dogs supposed to be rabid it is the rule to examine the digestive tract very carefully, and it has not been shown heretofore that the symptoms observed were not due to rabies. Dr. Monod deserves credit for having established the fact that the presence of spiroptera in the œsophagus can cause symptoms like those of rabies, but which have no real connection with the true disease.

The spiroptera sanguinolenta is a nematode worm, readily recognized by its blood-red color. The male is from one and a quarter to two inches in length, has a spiral tail furnished with two lateral wings, each of which is supported by six papillæ. The female is two and one-quarter to three inches in length, and the tail is only slightly curved. The spiroptera is found almost exclusively in tumors in the wall of the stomach and œsophagus, which vary in size from a hazel-nut to a pigeon's egg, and are dense to the feel. Only from one to three tumors are usually found, and each tumor contains from two to twenty worms, coiled and embedded in a purulent fluid, which may be made to exude by pressure from the orifice by which the tumor communicates with the digestive tract. It is hoped that in order to clear up this point this observation will lead veterinarians in this country to make careful examinations in cases of dogs dying with symptoms of rabies.

"The Value of Glycerinized Lymph over Vaccine Points, with a Series of Collective Reports," is the title of an article prepared by Dr. Albert C. Barnes, of Philadelphia. In summing up the relative value of these forms he states: 1. Properly prepared glycerinized vaccine is pure and free from staphylococci, streptococci, and other pathogenic organisms which are invariably found (Copeman, Crookshank, Pfeiffer, Reed, U. S. A.) on vaccine points. 2. Glycerinized vaccine affords absolute protection against smallpox; vaccine points are uncertain in this regard. 3. Vaccination with glycerinized products does not cause excessive inflammation of the vaccinated area. Cellulitis and inflammation of the lymph vessels and glands, amounting at times to abscess formation, are not infrequent sequences of the use of vaccine points. 4. Vaccine points are apt to lead to a false sense of security, inasmuch as they induce a local staphylococcic or streptococcic infection which is entirely distinct from true vaccination. Such a result is not protective against smallpox. 5. A high estimate of successful take from vaccine points is by these and numerous other reports shown to be not over 60 per cent. in primary cases and a much lower percentage in secondary cases. 6. Glycerinized vaccine has been officially adopted by the governments and health authorities of the United States, Great Britain, Germany, France, Russia and Belgium. It should be universally adopted in private practice.

EDITORIALS.

AMONG THOSE WHO HINDER PROGRESS.

It is astounding to read in various livestock and agricultural journals such sublime attitudes as many of them are willing to assume in view of the great advances being made in the control of tuberculosis. Rather than to adopt such measures as are now known to be necessary for its control; rather than to adopt some plan leading to its eradication, and rather than to place restraining measures to govern its spread, they are playing the rôle of injured innocence, and inasmuch as they have not contracted the disease themselves they are willing to go on and take the risk of the same rather than to support measures for prevention. These are the same people who objected to the use of petroleum for lighting, then gas, later on electricity, as superior to tallow dips, but they have come to pass, and the latter relegated to obscurity. They objected to steam roads because they displaced omnibus lines and prairie schooners; they fought trolley lines because they displaced horses—too menial and low a place for the noble horse—and they will go on objecting and obstructing until they are dead and gone. They live not to learn, they never forget anything. They still want to have in their homes consumptives without any precautionary methods or restraint. They want tuberculous patients to continue to spit on the floors of public vehicles and in public rooms. They still want to eat tuberculous meat, and rear their children on milk from tuberculous herds, and then charge Providence with bringing down on their heads sickness and death, the result of criminal negligence, and are wont to obstruct every measure and safeguard to keep them from their own folly and the exposure of others to like dangers. They prate about the destruction of 2 per cent. of the bovine species of our land, when evidence is on every hand throughout the Eastern section of our country where its ravages have wiped out entire herds, due to its contagious and infectious character. They are willing to further expose our practically free Western herds rather than join in protective measures for their salvation. That some particular friend or farmer may keep a polluted herd, they will object to measures that shall safeguard his neighbors from similar experiences and losses.

The time has come when these objectors and obstructionists must be set aside and sent to the rear that we may enjoy the beneficent results that are sure to follow the now well defined lines of control work in dealing with the "white plague."

GIVE RABIES AND HYDROPHOBIA A REST.

Of all the subjects exhaustively written upon by scientific writers for periodicals and books, bulletins and reports, by space writers and reporters for the yellow journals, and through every other avenue of the pen, to strike terror and fear to the average mind of laymen, and to even make shudder those engaged in the pursuit of scientific medicine, as they read in endless pages of manuscript and print the history and description of outbreaks so varying in character and aspect as have followed in the wake of "rabies and hydrophobia" from time immemorial. The never ceasing crusade against dogs, the wonderful results obtained through the use of madstones, the use of charms, and occult remedies, faith cures, fake Pasteur institutes, would fill books of thousands of pages, so that one would be led to believe that these diseases were as common almost as tuberculosis; while in truth the average veterinarian lives and dies without ever observing a single case in the human family, and only knows of them through sensational newspaper reports spread all over the land to add terror and fear to the timid mind. Is it not about time to give this subject a rest until more real scientific work is done in this field of research and some more accurate work completed beyond those tests on rabbits and guinea-pigs, so lacking in conclusiveness to a majority of scientific minds? A disease so rare if known at all among those most exposed to its virility—the dog catchers of every city and town—is one that should impress everyone learned in the profession of medicine to consider very deeply from a prophylactic point of view, and be ever ready to preserve and protect the human family from pseudophobia or lyssophobia that follow in the wake of mad-dog scares, widespread quarantine protection, multiplication of Pasteur institutes, discoveries of more effective madstones, and every other conceivable plan of treatment to play upon the minds of weak and incredulous people.

The veterinarian has an important duty to perform in this work, and he should lead in the control of these uncalled for and unfounded injurious reports that cloud scientific pathology.

The Italian veterinary profession suffered a serious loss in February, 1900, by the death of Professor Giovanni Canestini, Professor of Zoölogy and Comparative Anatomy. He was very active in the Society of Natural Sciences of Padova, Italy.

On May 1st the Missouri and Kansas State Sanitary Boards inaugurated the tuberculin test requirements in their respective States. A certificate from a qualified veterinarian or an examination at points of receipt and shipment are now required for all breeding and dairy stock destined to remain within the State limits. The result of such concerted movements will soon be strongly apparent.

NECROLOGY.

At Philadelphia, May 12, 1900, Dr. A. Tegtmier, aged seventy-three years. For more than thirty years he had been a practitioner of veterinary medicine, though a non-graduate, employing homœopathic measures in his practice.

On May 6th, at Winsted, Conn., Dr. E. M. Heath, graduate of the Chicago Veterinary College, class of 1897. Dr. Heath was also a member of the American and Connecticut Veterinary Associations; was in attendance at the last meeting of the American Veterinary Medical Association in New York, and since that time has rapidly declined in health from tuberculosis, leaving a wife and two small children. Current report indicates the belief that Dr. Heath contracted tuberculosis from his attendance upon examination and treatment of cattle.

Dr. J. H. McNeal, of the Bureau of Animal Industry, has been transferred from Boston to Buffalo, N. Y. It would seem that his stay among the bean-eaters was not as congenial to his taste as his sojourn among the Buffalonians.

Dr. F. C. Grenside, of New York City, is among the contributors to a fund for a mounted police medal and indorsement. It is hoped that the fund will ultimately provide for a free bed in one of New York's city hospitals for anyone injured in the performance of duty.

Dr. H. D. Gill, of New York City, takes an active part in matinée road races.

ARMY VETERINARY CORPS.

DISCUSSION IN THE UNITED STATES SENATE ON THE ADOPTION OF SENATOR KENNEY'S AMENDMENT TO THE BILL FOR THE EFFICIENCY OF THE ARMY, WHICH BECAME SECTION 14 OF SAID BILL, S. 4300 (COMMONLY KNOWN AS THE ARMY REORGANIZATION BILL).

[Extracts from the *Congressional Record*, May 4, 1900.]

Mr. Kenney: I offer the amendment which I send to the desk to come in on page 7, line 18, after the word "transfer."

The President pro tempore: The amendment submitted by the Senator from Delaware will be stated.

The Secretary: On page 7, in line 18, after the word "transfer," it is proposed to insert:

That the Veterinary Corps shall consist of—

A chief veterinarian, with the rank, pay, and allowances of a colonel, United States Army.

An assistant chief veterinarian, with the rank, pay, and allowances of a major, United States Army, to be promoted in 1905, after competitive satisfactory examination, from the grade of veterinarian and captain.

Four veterinarians, with the rank, pay, and allowances of a captain of cavalry, to be promoted in 1903, after competitive satisfactory examination, from the grade of assistant veterinarian and first lieutenant.

Ten assistant veterinarians, with the rank, pay, and allowances of a first lieutenant of cavalry, to be promoted, after satisfactory examination, from the grade of assistant veterinarian and second lieutenant after one year's service in this grade.

Twenty assistant veterinarians, with the rank, pay, and allowances of a second lieutenant of cavalry, to be appointed after satisfactory examination: *Provided*, That these twenty positions shall include the veterinarians, first class, provided for in the act of March 2, 1899, who have passed satisfactory examinations, and also the six veterinarians, second class, who are now employed in the army under said act of March 2, 1899.

All rules and regulations governing the Veterinary Corps shall be made by the Secretary of War, and the chief veterinarian shall report directly to that officer.

For pay of officers of the Veterinary Corps, $33,500.

Mr. Kenney: Mr. President, I shall not detain the Senate at any length by remarks on the amendment which I have just offered.

In any scheme for the reorganization of the Army of the United States there is no question that deserves more consideration than does that of a properly organized and commissioned veterinary corps. This country is alone in all the world in maintaining a great army without a properly organized and commissioned veterinary corps. In our Army to-day veterinarians are nothing more than civilian employés, hired from day to day, without any responsibility, and practically without authority.

The amendment which has just been read would increase the expense necessary to that corps over what is to-day being expended for the civilian service not more than $6000, while it would give to the service a corps commissioned and with all the responsibilities and with all the powers that go to commissioned officers.

I fail to understand what legitimate objection can be urged to the substitution in the Army of the United States of a corps like the one proposed by the amendment just read for that which to-day obtains in our service.

I have made a statement of the strength of the armies of the leading countries of the world, together with the number of veterinarians employed in those armies, which are as follows :

STAFFS OF VARIOUS ARMIES, JANUARY, 1899.

Country.	Strength active army.	Medical officers.	Strength cavalry.	Veterinary officers.
Austro-Hungary	305,735	1385	47,380	180
Belgium	51,302	150	6,064	35
Denmark	13,734	55	1,390	14
France	617,959	1485	80,048	*a*432
Great Britain	222,301	1580	17,586	136
Greece	24,076	*a*	4,877	*a*
Holland	78,093	184	4,193	*b*
Italy	230,760	691	23,507	189
Japan	87,560	*b*	3,500	*b*
Prussia	443,516	*c*	53,270	*d*
Roumania	127,984	73	16,053	44
Russia	868,672	*c*	90,000	*c*
Spain	128,153	793	14,376	236
Sweden	38,854	*c*	5,269	*c*
Switzerland	144,822	*c*	3,972	*c*
Turkey	286,000	*c*	21,800	*c*
United States	100,000	*f*196	.....	*e*

a Increased in 1899 to 603.—*Thierartze-Wochenschrift.*

b Number not given.

c Classification given by corps, division, brigade, and regimental staffs ; to each of which medical officers and veterinarians are attached.

d Increased in 1899 to 501.—*Thierartze-Wochenschrift.*

e Irregular number of civilian employés.

f Some 450 additional acting assistant or contract surgeons are also employed.

And so, without reading this list, Mr. President, I may say every civilized country in the world does maintain, organized and commissioned, a proper veterinary corps.

Mr. President, in support of my amendment, I desire to have incorporated as a part of my remarks letters from distinguished officers of our Army, beginning with General Merritt. I will not read the letters now. They are from General John R. Brooke, General James H. Wilson, General J. C. Breckenridge, General Wallace F. Randolph, colonel of the First Artillery; General Charles King, formerly captain of the Fifth Cavalry, now brigadier-general, United States Volunteers; Colonel O. L. Hein, lieutenant-colonel of cavalry and commandant of cadets; General James A. Beaver, ex-Governor of Pennsylvania; J. G. C. Lee, colonel and assistant quartermaster-general, United States Army; Colonel D. D. Wheeler, deputy quartermaster-general, and Major John W. Pullman, quartermaster, United States Army. All of these officers have not only approved this by word, but have written strong[1] letters favoring the establishment of such a corps.

An amendment offered by me to the Army Appropriation Bill and also one offered to the bill introduced by the distinguished Senator from Connecticut [Mr. Hawley] went to the Committee on Military Affairs, but had no consideration, as I understand. I now propose this amendment to this bill, which, I understand, is for the reorganization of the Army and for the betterment of the service. If its title means anything, then there is no branch or arm of the service that needs more consideration than does the Veterinary Corps.

I hope that Senators in passing upon this question will take into consideration that in the establishment of this corps it is not going to cost the Government of the United States a sum larger by more than $6000 than that which is to-day being paid for the kind of service the Government is receiving.

In this connection I might say that there is not to-day in the Army service veterinarians who are able to give that consideration and examination to the great question of Army foods that is required. Many will remember the very disagreeable criticism that was passed upon the administration of our Army during the Spanish-American war in regard to the food that was furnished to our armies. I desire to say—and I believe it to be true—that if we then had had a commissioned veterinary corps under proper regulations, that criticism would never have been had.

It is fresh in the minds of many Senators what great loss the Government sustained in the death of the cavalry and artillery horses stationed in Florida. That loss was largely due to the lack of veterinary treatment. In the United States to-day the value of army animals is so large that it seems to me any legislation which would aid in the preservation and protection of the property of the United States in these animals would be the strictest sort of economy.

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[1] The letters referred to have already been furnished to all veterinarians in pamphlet form.—ED.

I do not desire to go into a more extended argument in favor of this proposition.

Mr. Stewart: Mr. President, I believe this is about as important a matter as any other connected with the Army. Having some knowledge of veterinarians in general, I think that that service ought to be improved. The men who are hired as veterinarians do not generally have such an education as would fit them to act in the examination and purchase of horses for the Government and in the care of such horses. The Government suffers great loss, and the Army is crippled and inefficient. On the mere matter of purchasing five or six or eight or ten thousand horses the Government will save more than the amount it would pay for a proper organization in the way of a veterinary corps to examine the horses.

Mr. Proctor: Will the Senator from Nevada allow me?

Mr. Stewart: Certainly.

Mr. Proctor: I think the veterinarians are now examined. Their pay has been increased, so that the veterinarians of the first class receive $125 a month, the pay of an officer. Those of the second class receive $75 a month. I know it has been insisted upon for a long time that they should be graduates of veterinary colleges, and they are examined, I am sure, before they are taken into the service.

Mr. Stewart: It may be sufficiently provided for already, but my observation is to the contrary. I have heard a good deal of complaint in regard to it. I know that during the civil war the Government was largely imposed upon by the want of an experienced, organized veterinary force. If it is organized, then in order to make it efficient there should be an inducement to men of the first class to educate themselves, because in that regard a high standard of service is important to the efficiency of the Army. If it is thoroughly provided for, I have nothing further to say, although I know it is of great importance.

Mr. Proctor: I will say to the Senator that there has been an entire change since the civil war. Then they had about the pay of a sergeant. Now those of the first class have the pay of a commissioned officer, a first lieutenant.[1]

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[1] Error. A Second Lieutenant.—Ed.

Mr. Kenney: I desire to state that I understand there are but five or six veterinarians in the United States Army to-day who have passed an examination, and I think about three or four, not exceeding five, who are in the service by reason of long service, who failed to pass an examination.

Mr. Foraker: I desire to ask the Senator having this bill in charge what is the distinction between the classes? The bill speaks of veterinarians of the first class and veterinarians of the second class.

Mr. Proctor: Those of the first class are those who have been longer in the service and are better entitled for that reason and for their proficiency to have that higher position.[1] Of course, that is open to the promotion of those of the second class.

Mr. Foraker: It does not imply a difference, then, in the qualifications, I presume.

Mr. Proctor: Not necessarily.

Mr. Foraker: All are supposed to be educated and capable and to have passed the examination, I presume.

Mr. Kenney: I will ask the Senator in charge of the bill one question. That is whether to-day there is or not a commissioned veterinarian in the United States Army?

Mr. Proctor: They are not commissioned officers. Those of the first class are paid the pay of a commissioned officer.

Mr. Stewart: Has this matter been considered by the Quartermaster's Department, which has particular connection with it? Has it been considered by the General of the Army or those having the matter particularly in charge? Have they been consulted in regard to this matter?

Mr. Proctor: This proposed amendment was before the Military Affairs Committee in the form of a bill, and was carefully considered, and I for one, and I think other members of the committee, visited the War Department and asked whether it was a thing desired for the Army, and they insisted that the present arrangement was entirely satisfactory.

Mr. Cockrell obtained the floor.

Mr. Gallinger: I will ask the Senator who insisted that that was the fact, inasmuch as almost all the higher officers of the Army have written letters and personally have said that they desire this to be accomplished?

Mr. Kenney rose.

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[1] Error. The second class are those who failed in examination.—Ed.

Mr. Proctor: The Senator from Delaware, I am sure, has those letters in his possession.

Mr. Kenney: Yes, sir.

The President pro tempore: The Senator from Missouri was recognized.

Mr. Cockrell: Mr. President, the Committee on Military Affairs considered the general bill creating this corps of veterinary surgeons and voted against recommending its passage. I am opposed to the amendment, and I wish to say to the Senate that they probably have very little conception of the pressure that is brought to bear upon the Committee on Military Affairs to create additional corps in the Army. There are proposed a veterinary corps with a colonel at the head of it, a dental corps with a colonel at the head of it, a nurse corps with a colonel at the head of it.[1] All these have been attempted to be ingrafted onto the Army to create separate and independent corps, and the Committee on Military Affairs thus far has not deemed it necessary to make any of those additions.

We have not recommended a veterinary corps because we do not believe a corps organization for the veterinary service is necessary. We already have under existing law veterinarians, two for each regiment of cavalry, and have had ever since the 3d of March, 1899. They are provided for in the bill that was passed for the reorganization of the Army. One of them has the pay of a lieutenant and the other one has $75 per month. In this bill we create veterinarians for the horse artillery. I suppose there is no necessity that the heavy artillery should have veterinarians when they do not use horses.

There are two veterinarians of the first class and two of the second class, the first class receiving the pay of a lieutenant, the second class $75, and they shall have the pay and allowances of veterinarians of cavalry of corresponding classes. We think this is an ample provision for the veterinary service. As I understand it, these veterinarians to be appointed have to be examined by a board to be constituted by the Secretary of War. I know a number of veterinarians from Missouri who were seeking these places, and on presenting the applications to the War Department they said they would make no appointments—that was last spring—until they had adopted rules and regulations and a board for their examination. I have not asked whether that has been done or not, but I presume it is in operation to-day, and that every veterinarian who has been appointed since the passage of the act of 1899, or who will be appointed under the provisions of this bill, will be those who have passed a satisfactory examination. I doubt not that examination will require that they shall be graduates of a veterinary institution of this country or Canada.

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[1] These latter statements are incorrect.—Ed.

Mr. President, we can see no necessity for a colonel to have charge of veterinarians throughout the Army. Those two veterinarians to each regiment go with the regiment. They are there; the horses are there; they are there to attend to them; and in the artillery the veterinarians will be in the same way. We cannot see any necessity for or any benefit or any advantage from this. The only thing, it seems to me, will be the creation of a few officers with rank and pay and the privilege of retirement, and I do not believe that is either fair or just. It is purely a civilian employment.

Mr. Wolcott: Mr. President, I do not think the advocates of this amendment should be driven from its support because of the suggestion of the Senator from Missouri and others that opening the door to the appointment of a veterinary staff would likewise lead to the appointment of a dental staff. It would not frighten me, for I recognize in the dental profession a body of educated and cultivated gentlemen whom I should be very glad to have represented with official rank in the armies of our country, especially since we are reaching out to distant colonies where treatment such as is obtained at home is impossible. But in the consideration of this amendment we need not dwell upon the possibilities of other open doors.

Mr. President, the fighting of this world, as is now being demonstrated in South Africa, is largely cavalry fighting. I think that it is becoming more and more evident to every student of wars, and if it is, there is no profession in the world that needs such encouragement and such advancement as that of the veterinarian, who can see that the horses of the Army are fit to fight with.

There is not another civilized country in the world that does not recognize veterinarians and give them commissions. It is true we have a few veterinarians. They are called farriers, I think, in the Army, and we put them down in the rank of privates or sergeants. We pay one of them, it is true, the salary of a first lieutenant, and we give the other $75 a month, but that does not compensate a man who is a member of an honorable and educated and an intelligent profession. As was said here this morning by my colleague in reference to another subject, it is the rank that counts. I think that a little consideration will convince every member of the Senate, who is not already convinced, of the great importance of the service which the professional veterinarian renders and might still further render in the armies of the United States.

It is not alone in the treatment of the livestock of the Army. He deals also with the food that goes to our troops. He passes the meat on inspection. Every pound of fresh meat that is served to our soldiers passes under his intelligent inspection. All cattle that are bought upon the hoof and carried with the Army, to be killed as the necessity requires, must be treated by him; and any man who knows of the danger of contracting disease and sickness from diseased cattle can realize somewhat of the necessity that rests upon the Government to see that intelligent men deal with this question.

This Government has now, in times of peace, so far as its use of cavalry is concerned, more than $3,000,000 invested in horses and mules. Unintelligent shoeing, unintelligent acclimatization, unintelligent treatment, ignorance in the purchase of horses, not only costs us hundreds and may cost hundreds of thousands of dollars a year, but in time of war would lead to endless and disastrous consequences. In England the head of the service ranks as colonel. In Germany they enter as subordinate officers and are promoted as high as the rank of major. In France and Italy and every other country the veterinarian is recognized by his official title.

I tell you, Mr. President, this whole question is not, in the minds of those who are considering it, I fear, a question, as to the necessity of the service and the necessity of the intelligence of it, but it is a question whether or not the man who is vulgarly called a horse doctor ought to associate with officers who may be graduates of West Point.

Mr. President, we do not realize the growth that has taken place in that profession. There are to-day veterinary surgeons graduates of every college and university in the United States. I know men graduates of Harvard University living in Massachusetts who are to-day devoting their lives to the veterinary service. If it were not for the presence here of distinguished alumni of Harvard University I would almost be inclined to say that the flower of the university largely went into the veterinary service. I know graduates of Princeton and other colleges who adorn the profession.

All these professions are matters of growth and slow growth.

To-day the medical profession is recognized as one of the noblest and best and most sacrificing methods by which a man may devote his life to the cause of his country. It is not a hundred years since skilled physicians used to prescribe powdered snail shells for disease and certain herbs plucked at a certain stage of the moon's phases. There are to-day men travelling around in some of the Southern and Western States, physicians admitted to the profession, with madstones in their pockets to cure hydrophobia. The profession is a noble profession, and it is growing, and it is recognized, and we are proud to have our brothers and our relatives and our friends members of it.

So the veterinary profession is growing, and if it be noble to devote one's self to ameliorating human suffering, it is greater and nobler in some respects to devote your life to the amelioration and the relief of the sufferings of dumb animals. That is what is going on in the profession to-day. Men from colleges and universities come out from them intending to devote their lives to the welfare of mankind and the advancement of the world. They find their mission in looking after the dumb animals who cannot tell their sufferings, and in trying to make them better able to bear the burdens which man puts upon them.

I say, Mr. President, that it is not fair to relegate these men as farriers and put them in as non-commissioned servants. An American officer is a gentleman by his conduct and not by his designation. The skilled veterinarians of the Army are as much entitled to the rank of officers as West Point men are, if they are gentlemen and fill the duties they are called upon to perform. The officers of the Army do not object to associating with them. From General Sheridan's time to now there has been an earnest effort by every general who has ever fought with cavalry to have the veterinarians recognized as an official branch of the service. I am surprised to hear the Senator from Vermont say that he made a call on the War Department and found somebody in charge there opposed to it. For one, I should be glad to know who it is at the War Department who does not think a veterinarian ought to have the official rank and pay and be entitled to associate officially with other officers of the Army.

So I say all of us recognizing the usefulness of this profession, all of us recalling the fact that the officers of the Army do not object to the veterinarians having name and rank and place as officers of the Army, we can afford to give them the title and the rank, and it means no increase of appropriation.

Mr. Proctor: That the Senate may understand the present provision I will read a line or two from the act of March 2, 1899, in regard to veterinarians:

> *Provided*, That the veterinarian appointed to the first grade shall not be so appointed until he shall have passed an examination, to be prescribed by the Secretary of War, as to his physical, moral, and professional qualifications.

Now, in regard to this matter, I will say that a bill precisely like the amendment, as I understand it, came before the Military Affairs Committee, and came through the War Department. The Senator from Colorado [Mr. Wolcott] wishes to know what officials there oppose it.

Mr. Wolcott: Yes.

Mr. Proctor: It came through the War Department strongly indorsed, as I recall it (I will have the indorsements in a few minutes), and with the indorsement of the Secretary against the creation of this corps.

I will also say that it seems to me that this bill is not the proper place for this question to be tried. This bill only increases the field artillery, which is the only force that would require veterinarians, by what is the equivalent of a regiment and a half, and four veterinarians are appointed for that force, more than there would be for the same number of cavalry. When there is a general reorganization and increase of the cavalry, of course there will be a large increase; and it seems to me it would be more appropriate to be considered then.

I will say that all the officers of West Point are instructed very carefully in the care and treatment of diseases of the horse, of course.[1]

Mr. Sewell: Mr. President, there has been an effort for two or three years past, last year particularly, on the part of private gentlemen outside to create this corps. I have never known any measure brought before Congress that had so much manufactured support from outside to further it. It proposes to create a colonel, a major, 4 captains, 10 first lieutenants, 20 second lieutenants—36 additions to the veterinary corps of the Army, now consisting of 20. One is to have the rank, pay, and allowance of a second lieutentant and one that of sergeant-major. The Army has existed—

Mr. Lodge: Will the Senator from New Jersey allow me to ask him a question? How many men would these officers whom he has just enumerated have under their command?

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[1] Error.—Ed.

Mr. Sewell: There are ten regiments of cavalry.

Mr. Lodge: I mean how many men would be in the corps?

Mr. Sewell: Thirty-six.

Mr. Lodge: They are all officers?

Mr. Sewell: Yes, they are all officers.

Mr. Hale: Just as surgeons are all officers.

Mr. Sewell: I want to say, from long experience in connection with cavalry, that the veterinarian of the cavalry is the captain of the troop. He is the man who knows the condition of his horses. He has been in the cavalry fifteen years—seven or eight years as second lieutentant, seven or eight as first lieutentant—before he becomes a captain. He knows more by reason of his study, and we have the most advanced books on that science; and as his life depends upon his horses and upon having them in good condition, there is no man more interested than the commanding officer of the troop. He is delegated often to buy his own horses by reason of his knowledge; some more, some less.

But he ought not to be interfered with by a lot of youngsters who come out from a college, where they have been taught to dissect, but whose knowledge is not a particle of use to the troop. The old veterinarian, commencing with the farrier, has forgotten more than he would learn of the care of the horse, not in the dissecting of his foot in case it is broken, not in scraping his kidneys or his liver, something that is of no use, because you cannot resurrect a horse after he has broken his leg. He has to go down.

Mr. President, this is just an attempt to legislate thirty-six officers, a new corps, into the Army, without the desire of the Army, without the sanction of the Secretary of War, without any indorsement except the gentlemen who want to fill the positions, very nice ones, to be sure, but without any necessity, in any sense.

They tell us that the armies of Europe all have veterinarians. They have. They have a great many other things we do not want. It would pay the English Government to send over here and get forty or fifty or a hundred farriers to go down there and save their horses now from the veterinarians who graduated from their colleges. We have no use for this. As I say, it is the desire of some gentlemen to have commissions. That is all it is.

Mr. Kenney: In reply to the discussion as to who favors it, or whether there is an indorsement of this amendment by the War Department, I desire to say that from General Miles down, including every head of a bureau in the War Department—I mean the Quartermaster-General, the Inspector-General, General Miles himself, and others whom I cannot now call to mind—they have stood ready and willing to indorse to the Secretary of War, or to the Committee on Military Affairs of the Senate or the House, this proposed legislation if an opportunity had been given to them so to indorse. But on no occasion has the Secretary of War or the Adjutant-General or the Assistant Secretary of War, or, as I understand it, the Committee on Military Affairs of the Senate, called upon General Miles or the Quartermaster-General or the Inspector-General or any of these officers to whom I refer to know whether or not they do or do not indorse this proposed legislation.

On the contrary, I have here introduced as a part of my remarks, letters from General Brooke and other Army officers, too lengthy to read, but which will be printed in the *Record* to-morrow, showing that they do, outside of the indorsement to the Secretary of War or the Committee on Military Affairs, heartily and fully indorse this scheme. That'is true all the way down from General Sheridan's time, and had it not been for his untimely death I have not the slightest doubt but that to-day, and long ago, we would have had in the Army of the United States a properly organized and commissioned veterinary corps.

The distinguished Senator from New Jersey [Mr. Sewell] speaks of the interference of these young men of the veterinary corps with the captain of the troop. That cannot be so. He will be the commander of the troop, company, or battery, and these men will have the same relations with him that the surgeons in the army have. There has been no contention that there is friction between the surgeons or assistant surgeons in the Army and the colonels commanding the regiments and the captains of companies or troops or batteries. Then why should there be more friction between these commissioned officers, if they should be made so, than in the case I have referred to in the Medical Department? There will be none.

I desire, in order to show just what great amount of money the United States has invested in Army animals, to read a table from the annual report of the Quartermaster-General of the United States Army in 1899, showing the purchase during the year from July 1, 1898, to June 1, 1899, which was practically after the close of the Spanish war:

	Number.	Total cost.	Aver. per head.
Cavalry horses . . .	2094	$219,727 17	$104 94
Artillery horses . . .	775	96,374 04	124 35
Riding horses . . .	176	22,730 00	129 15
Draft horses	15	2,496 50	166 43
Pack horses	71	3,595 00	50 63
Bell horses	1	50 00	50 00
Draft mules	3834	416,131 50	108 54
Pack mules	301	28,294 00	94 00
Oxen	16	1,600 00	100 00
Total . . .	7283	$790,998 21	

There remained on hand at the close of the fiscal year, June 30, 1899, 12,622 horses and 13,158 mules, valued at over $2,500,000.

In addition to this enormous investment in animals for the cavalry, artillery, and transportation, the Army purchased large quantities of animal food, the quality of which requires inspection.

To show exactly the difference that there will be in the organization of a commissioned corps from that which we have to-day, in cost and number of officers, I desire to submit the following:

For the first year under this amendment, should it become a law, there would be 1 colonel, at $3500 a year; 20 second lieutenants, with salaries amounting to $30,000; 14 quartermaster veterinarians, at salaries amounting to $25,200; making $58,700, as against the present system of $51,000, or a difference after the first year, should the amendment be enacted into law, of $7700.

Now, if you will examine the amendment you will find that there will be a difference after the first year, by promotion from one to the other of the ranks, of more than a thousand dollars. The amendment after the first year would provide for a colonel and 4 captains, 10 first lieutenants, and 20 second lieutenants. That would be a corps consisting of 35, at a cost per annum to the Government of $57,500. The present system after the first year would be 15 civilian quartermaster employés, at $150 a month, or $27,000 per annum; 10 senior veterinarians, at a cost of $15,000 per annum; 10 junior veterinarians, at a cost of $9000 per annum, making $51,000 that the present system will cost the Government against $57,500 after the first year under this organized and commissioned veterinary corps, or a difference of $6500.

Now, can it be successfully contended that there can be, in a comparison of service to the Army, that one is equal to that of the other? It cannot be so. It would be as right to contend that there is no need for a first and second lieutenant in the companies of infantry, the troops of cavalry, and batteries of artillery. They might be non-commissioned officers, if you please. There is no more sense in the one contention than in the other. The gentlemen who go into the Army of the United States and pass the examination required under the provision of this amendment are the sons of gentlemen throughout the country, men who are graduates of the greatest and best universities and colleges in the United States, and they stand shoulder to shoulder as gentlemen and as educated men with any man who comes from West Point or from any other walk of life.

Mr. Proctor: Mr. President, in regard to the reference of this question, I will state that it is not customary for the Committee on Military Affairs to consult all the officers of the Department. There is a regular channel. Bills are referred to the Secretary, and he calls on such officers as have to deal with the subject for their reports. When this bill was before the committee it was referred in the usual course to the War Department, and I will read the indorsement of the Secretary:

WAR DEPARTMENT, March 26, 1900.

Respectfully returned to the Committee on Military Affairs, United States Senate, calling attention to the foregoing indorsement.

The foregoing indorsement was that of the Adjutant-General, of course, and was largely quotations from the law, showing that the veterinarians were increased in importance by the act of March 2, 1899. The Adjutant-General says:

> The act of March 2, 1899, "For increasing the efficiency of the Army of the United States, and for other purposes," provides (Section 2) for two veterinarians in each cavalry regiment, one with the pay and allowances of a second lieutenant of cavalry and one with pay at the rate of $75 per month and the allowances of a sergeant-major, and provides "that the veterinarian appointed to the first grade shall not be so appointed until he shall have passed an examination, to be prescribed by the Secretary of War, as to his physical, moral, and professional qualifications;" and "*Provided further*, That the veterinarians now in service who do not pass such competitive examination shall be eligible to the position of the second class under such rules as are now prescribed by the regulations."
>
> Upon full consideration of the subject at the time it was believed that this provision would provide for efficient veterinarian service for the cavalry regiments.

Now, the Secretary of War says:

> The army is urgently in need of more artillery, more staff officers, and more line officers than it now has, and of more soldiers than it will have after the 30th of June, 1901, unless the fighting force of the permanent establishment shall be largely increased by Congress. No bill of this kind ought to pass until these matters of real importance have been provided for. If there is to be any increase, as there should be, it ought to be in

the directions indicated. No such rank as is provided for by this bill ought under any circumstances to be given to the veterinary corps. If the country is willing to pay for more colonels and majors and captains, the money should be expended upon the fighting force of the army to furnish opportunity for promotion to the hundreds of gallant fellows who have been enduring hardship and facing death on the battlefield.

Nor do I consider that a separate veterinary corps is desirable. There are already too many separate organizations reporting to the Secretary of War.

That, I believe, everybody will admit as a truism.

One of the evils of our organization is that of multiple command; that in every geographical or technical organization there are so many officers who are not commanded by the commander, but report directly to Washington.

This provides that the chief veterinarian shall report directly to the Secretary of War.

The result is that it is very difficult to fix responsibility as to the condition of anything, and there is a weakened sense of responsibility as to the condition everywhere. The Secretary of War ought not to be responsible for the condition of the horses of a cavalry regiment; the colonel of the regiment should be held responsible for them, and the duties of veterinarian should be performed by men who are under his orders, reporting to him, and not by members of a corps reporting separately to the Secretary of War. The bill is distinctly a step in the wrong direction, and I hope it will not receive favorable consideration. Due provision is made for veterinary service in the bill referred by the Adjutant-General in the first indorsement hereon, to which I beg to invite the attention of the committee.

ELIHU ROOT,
Secretary of War.

Mr. Lodge: Mr. President, it seems to me that there is one very serious objection to this proposition. No one can deny the importance of veterinarians; no one can deny the importance of having well-educated men for those positions; but the objection to which I refer is the tendency to multiply civilian corps and then load them with rank. We have a civilian engineer in the Navy now with the rank of admiral, a man who never went to sea, whose duties are concerned in civil engineering in yards and docks, no doubt a most excellent officer. We have, if I am not mistaken, paymasters who carry so much rank that they cannot go on a ship. There is a tendency to build up these civilian corps, to load them with rank, and then, of course, as has been pointed out in the letter of the Secretary of War, there is just so much less opportunity for the combatant force.

I think, Mr. President, it is a great mistake to go on with this multiplication of civilian corps with this high rank. Here is a whole corps of officers made, beginning with a colonel and coming down to some twenty second lieutenants. I do not think that we want to enter on the increase of the civilian corps attached to the Army and Navy. We ought to give the rank to the men who are in the fighting line, on the ships and on land, and not multiply it for all these various corps. If one comes in, that is a ground for another to come in. I do not believe we should get any better service by this method rather than by giving good veterinarians suitable pay and the recognition to which I freely admit their profession is entirely entitled. Give them a separate rating, if it is so desired, but do not put them in with a colonel at the head responsible only to the Secretary of War, making another conflict of authority in the organization of the Army.

Mr. Gallinger: Mr. President, a single word. When the proposition was presented to the Senate to create a Lieutenant-General for the Army, we were told that it was important to have it done because European nations had lieutenant-generals in their armies. When this proposition is presented to the Senate, we are told by a distinguished member of the Military Committee and a distinguished soldier that we do not want to imitate the methods of European countries and that we could send over some of our farriers to the Transvaal to teach the educated veterinarians of England important lessons in taking care of their horses.

Now, Mr. President, I do not apprehend that that is so. The fact is, as I understand it, that every army in Continental Europe has a corps of veterinarians substantially the same as is proposed in this amendment, and it is clear to my mind that such would not be a fact if they did not find it to their advantage to have these educated men to care for their animals.

The Senator from Colorado [Mr. Wolcott] has covered this question so clearly and so ably that I do not wish to traverse that ground, but I will venture to add that to my mind it is exceedingly important that we should have educated men in our Army to care for the animals. It is a fact, as stated by the Senator from Colorado, that the veterinarians of this country to-day, those who are properly recognized as such, are men of equal culture and equal education to those of the medical profession or the legal profession or of any other profession that is recognized in the United States. They are men who have given a great deal of time to the study of medicine, medicine in its broadest sense, and to all the specialties that are recognized as being necessary to educate a man to understand the diseases of the human family, as well as those of the brute creation.

I know some of these men who are graduates of universities and who have given long years of study in this country and in Europe to qualify them for the performance of their duties as veterinarians. And yet we hear them spoken of, and it has been spoken in my presence to-day in a whisper by more than one Senator, that we propose to give rank and commission to horse doctors. Well, Mr. President, they are horse doctors, I suppose, in the ordinary acceptation of the term, but they are more than that. They are educated men who have an ambition to distinguish themselves in their chosen profession, and that profession is just as honorable as any other.

Mr. Spooner: They are horse doctors in the same sense that other doctors are man doctors.

Mr. Gallinger: Precisely; and they have educated themselves just as thoroughly to discharge their duty as the man doctor has educated himself to discharge his duty.

Now, Mr. President, it seems to me that no valid objection has been raised against this amendment. The Secretary of War, it is true, seems to have reported against it; but I take it that the Secretary of War knows less about this subject than General Sheridan, or General Miles, or the Quartermaster-General, or men who have been educated in military science know about it. Hence I certainly cannot lay as great stress upon his opinion as I lay upon the opinions of those great officers who were thoroughly acquainted with the needs of the Army and who speak from actual observation and experience.

I will esteem it, Mr. President, a privilege to vote for this amendment, and I trust that it shall be adopted.

Mr. Foraker: Mr. President, I do not rise for the purpose of discussing the merit of veterinary surgeons. I think that has been well set forth by those who have spoken in behalf of this amendment. I should like to vote for the amendment if it could be amended so as to avoid creating a separate corps and taking the veterinary surgeons out from under the authority and direction of the regimental and other Army commanders and be so limited as simply to give to them rank. I rise for the purpose of suggesting that to the Senator who has offered this amendment.

I think the men who are to perform this service ought to be recognized as entitled to rank as well as pay. It is proposed by this legislation, as it has already been provided by the legislation that this refers to, to give them the pay and the allowances, and I see no reason why we should not give them the rank as well.

Mr. Kenney: I will suggest, in reply to what the distinguished Senator from Ohio has said, that I will accept an amendment, so that my amendment would read like this:

There shall be in the army the following:

And by striking out in lines 13 and 14:

And the chief veterinarian shall report directly to that officer.

So as to read:

All rules and regulations governing the veterinary corps shall be made by the Secretary of War.

Therefore it would place it entirely in the hands of the Secretary of War to direct how the force should be used and through what channels it should report.

Mr. Spooner: If the Senator will allow me, what provision will he make for rank?

Mr. Kenney: I leave the rank just as it is, but I am willing to strike out the words "That the veterinary corps shall consist of" and substitute in lieu thereof "there shall be attached to the Army a chief veterinarian with the rank, pay, etc.," and then provide for all as my amendment did originally.

Mr. Spooner: What is the rank?

Mr. Kenney: First, a colonel, 4 captains, 10 first lieutenants, and 20 second lieutenants.

Mr. Spooner: That makes a corps. I understood that it was the suggestion of the Senator from Ohio to give these veterinarians now in the service an appropriate rank.

Mr. Kenney: They are provided for, you will find.

Mr. Spooner: Some of us are willing to vote for a proposition like that who are not willing to vote for a colonel, a lieutenant-colonel, a major, and so on.

Mr. Tillman: I ask the Senator from Delaware what use have we for a colonel? If these officers are to be subordinate to the captain or colonel of the cavalry or artillery regiments where they have horses, merely an appendage, so to speak, like any other subordinate officer, what use have we for a colonel anywhere in this business, or any other officer other than the veterinarian who shall rank along with the lieutenant or captain, if we choose, and perform a specific duty? I can see the necessity for some rank, because otherwise the privates will not pay the same respect to orders and will not care for their horses under instructions unless the veterinarian appeals to the officer in command; but I really do not see any use of a corps here, and I do not see any use for any higher officer than lieutenant or possibly captain.

Mr. Foraker: The remarks of the Senator from South Carolina meet the suggestion I made exactly. It is my chief objection to this amendment that it provides a corps and takes a veterinary surgeon who belongs to the regiment out from under the command and authority of the colonel and other officers of that regiment.

Mr. Tillman: It puts somebody supposed to be very skilled in veterinary surgery at the head of a bureau here in Washington to sit down here with a salary and do nothing, and to that I object. I will vote for some rank for these officers and a reasonable number of them, but I do not see any sense in forming a bureau of veterinary surgery here in the War Department.

Mr. Wolcott: I suggest that we vote on the amendment as it stands.

Mr. Kenney: Very well.

The President pro tempore: The Senator from Delaware demanded on this amendment the yeas and nays. Is there a second?

The yeas and nays were ordered.

Mr. Tillman: What is the shape in which the proposition is now to be voted on?

Mr. Kenney: As originally offered.

Mr. Tillman: Just as it was originally offered?

The President pro tempore: The question is on the original amendment without modification. The Secretary will call the roll on agreeing to the amendment of the Senator from Delaware.

The Secretary proceeded to call the roll.

Mr. Burrows (when his name was called): I am paired with the senior Senator from Louisiana [Mr. Caffery].

Mr. Culberson (when Mr. Chilton's name was called): My colleague [Mr. Chilton] is unavoidably absent on account of illness.

Mr. Hansbrough (when his name was called): I again announce my pair with the senior Senator from Virginia [Mr. Daniel], and I will take the liberty of transferring that pair to the senior Senator from Rhode Island [Mr. Aldrich] and will vote. I vote "yea."

Mr. Lindsay (when his name was called): I have a general pair with the senior Senator from Michigan [Mr. McMillan], and withhold my vote.

Mr. Pritchard (when his name was called): I have a general pair with the junior Senator from South Carolina [Mr. McLaurin]. I therefore withhold my vote.

Mr. Proctor (when his named was called): With the consent of the Senator from Utah [Mr. Rawlins], I will make the same transfers of pairs I did before and vote. I vote "nay."

Mr. Spooner (when his name was called): Does the Senator from Tennessee [Mr. Bate] know how his colleague [Mr. Turley] would vote?

Mr. Bate: I do not. He would not object, I am sure, to the Senator's voting on this question.

Mr. Spooner: Then I will vote. I vote "nay."

Mr. Taliaferro (when his name was called): I have a general pair with the junior Senator from West Virginia [Mr. Scott].

Mr. Tillman (when his name was called): I have a general pair with the Senator from Nebraska [Mr. Thurston]. He is absent and I withhold my vote. If I were at liberty to vote, I should vote "nay."

The roll-call was concluded.

Mr. Bacon (after having voted in the affirmative): I have a general pair with the junior Senator from Rhode Island [Mr. Wetmore]. This is a question so purely non-political that I will allow my vote to stand, as I am authorized to do under our agreement.

Mr. Taliaferro: I transfer my pair to the senior Senator from Texas [Mr. Chilton] and vote. I vote "yea."

Mr. Butler: I am paired with the Senator from Maryland [Mr. Wellington], and I therefore withhold my vote.

The result was announced—yeas 25, nays, 23; as follows:

Yeas—25.

Allison,
Bacon,
Baker,
Chandler,
Clay,
Culberson,
Foster,
Frye,
Gallinger,
Gear,
Hale,
Hansbrough,
Kenney,
McComas,
McCumber,
McEnery,
Morgan,
Nelson,
Perkins,
Quarles,
Stewart,
Taliaferro,
Teller,
Turner,
Wolcott.

Nays—23.

Bard,
Bate,
Cockrell,
Deboe,
Depew,
Fairbanks,
Foraker,
Hawley,
Keen,
Kyle,
Lodge,
Pettigrew,
Pettus,
Platt, Conn.
Proctor,
Rawlins,
Ross,
Sewell,
Shoup,
Spooner,
Sullivan,
Vest,
Warren.

Not Voting—39.

Aldrich,
Allen,
Berry,
Beveridge,
Burrows,
Butler,
Caffery,
Carter,
Chilton,
Clark, Mont.
Clark, Wyo.
Cullom,
Daniel,
Davis,
Elkins,
Hanna,
Harris,
Heitfeld,
Hoar,
Jones, Ark.
Jones, Nev.
Lindsay,
McBride,
McLaurin,
McMillan,
Mallory,
Martin,
Mason,
Money,
Penrose,
Platt, N. Y.
Pritchard,
Scott,
Simon,
Thurston,
Tillman,
Turley,
Wellington,
Wetmore.

So Mr. Kenney's amendment was agreed to.

SOCIETY PROCEEDINGS.

THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

THE forty-sixth regular meeting of this Association was held at Newark, N. J., on Thursday, May 10, 1900. The President not having arrived, Secretary Lockwood called the meeting to order at 11 A.M., and Dr. William Herbert Lowe, of Paterson, N. J., was nominated and chosen chairman *pro tem.* by acclamation. Roll-call showed that there were twenty-five members present. The minutes of the last meeting were read and approved. President Hurley arrived later and presided.

Dr. Lowe reported that the compilation of the *Veterinary Medical Register of the State of New Jersey* was well under way and would soon be ready for publication. Letters were read from Drs. Leonard Pearson, R. C. Vail, and W. Horace Hoskins.

The veterinary army bill as passed by the United States Senate was unanimously indorsed and resolutions adopted. A committee on army bill, consisting of Dr. Budd, of Orange; Dr. Runge, of Newark, and Dr. Harker, of Trenton, was appointed to go to Washington to secure the support of the Hon. R. Wayne Parker, Chairman of the Military Committee, and our other Representatives in Congress, for the bill. The House of Representatives was asked to concur in the bill as passed by the Senate, without change or amendment.

On motion of Dr. Harker, the Chair appointed a special committee on revision of the Constitution and By-laws, as follows: Dr. William Herbert Lowe, of Paterson, Chairman; Dr. James T. Glennon, of Newark; Dr. Richard Hasbrouck, of Passaic; Dr. T. Earle Budd, of Orange, and Dr. L. R. Hurley, of Hopewell.

All new members present who were elected at the January meeting were each given his certificate of membership upon signing the Constitution and By-laws.

Upon the completion of routine business two interesting papers were read and discussed. The first one was on "Median Neurectomy," by Dr. J. Payne Lowe, of Passaic, who gave a concise and comprehensive account of his experience with the operation, the indications for the operation, and the results obtained. Dr. Lowe's paper will be found elsewhere in this issue.

Dr. Lowe was followed by Dr. S. S. Treadwell, of Englewood, who read a paper on "Navicular Arthritis," and operations for the relief of the same.

After the reading of the papers Dr. James McDonough, of Montclair, delivered an extemporaneous lecture on "Contraction of the Horse's Foot," which was both original and instructive. His remarks showed that he has made his subject a life study, and that his study has been coupled with a large experience and a sound judgment. Several members who heard his remarks said that they had never heard the subject treated in such a practical manner before; that it had even surpassed anything that they had heard in college.

Dr. J. Payne Lowe, upon invitation of the Association, will perform the median neurectomy operation for the relief of chronic tendonitis at the next meeting of the Association, which will be held at Atlantic City on the second Thursday in September. Other essayists for this meeting will be Drs. George W. Pope, E. Matthews, S. R. Sauter, and E. L. Loblein. It is expected that the attendance at this meeting will be very large.

S. Lockwood,
Secretary.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

Secretary Ranck has just issued the following important letter in connection with the coming semi-annual meeting:

The semi-annual meeting of the Pennsylvania State Veterinary Medical Association will be held at Erie, on September 18, 1900. The object of this meeting is, as you know, for the advancement of the profession in our State, and as we are in advance of all other States in the country in the control and suppression of diseases, there is no reason for us to be backward in general association work.

There are a great many eligible men who would be benefited by becoming members, and would also be a decided help to the Association. Will you kindly see your near-by colleague and present him with a copy of the By-laws, which you can obtain from the Corresponding Secretary if you do not have them on hand, and urge him to join?

Since we expect to make this meeting a most successful one, and hope to have reports from all the committees, it will be of great benefit and importance for you to be present.

The programme promises to be very interesting and instructive, which I hope will be strengthened by hearing from you either in form of paper or reports of cases. Please notify me at your earliest convenience whether you will be present, also whether we can add your name to the programme.

E. M. Ranck,
Corresponding Secretary.

The Veterinary Medical Association of New Jersey meeting in May was well attended, and much interest in Association work manifested. Additional strength was added in the election of several new members.

PERSONALS.

The spring meeting of the State Board of Agriculture at Lock Haven, Pa., early in June, was addressed by State Veterinarian Pearson on "The Relation of the Wholesomeness of the Stable to the Health of Its Inmates."

Dr. H. D. Gill, of New York, moved into his new home and hospital quarters the latter part of May.

Dr. C. A. Mooney, of Hiawatha, Kansas, is employed by the English Government as veterinarian for the purchasing station at Kansas City.

The suppression of "Bovine Tuberculosis" is the title of a reprint from the annual report of the Rhode Island State Board of Agriculture, by Dr. Austin Peters, of Boston, Mass. Dr. Peters reviews the various plans suggested and comments upon their feasibility.

Continuing their splendid records as marksmen in military circles of New York State, Drs. William H. and Bryer Pendry, of the Borough of Brooklyn, never forget to train their guns Washingtonward in favor of army legislation.

Dr. J. R. Fountain Rochester, of Denton, Maryland, has taken a degree in human medicine in one of Philadelphia's medical colleges.

Dr. M. H. Reynolds, of St. Anthony Park, Minnesota, is one of the most extensive contributors to veterinary, agricultural stock raising, and sanitary publications in this country. He wields a busy pen.

"Nolan and his pet dog" is the way the boys put it at old "Penn." In the veterinary department, now some eighteen years old, he fills the rôle of "the only Nolan."

Dr. A. B. Kelly, formerly with his brother, Dr. W. H. Kelly, of Albany, N. Y., has located in Johnstown, same State.

Dr. James L. Robertson, of New York, and F. H. Mackie, of Fairhill, Md., acted as veterinarians to the second annual open-air horse show at Baltimore in May. Dr. A. W. Clement acted as veterinary referee.

Dr. W. L. Rhoads, of Lansdowne, Pa., is now the promoter of a wave motor, and in harnessing the wave force of the ocean he is sanguine of riding into billows of wealth.

Dr. George C. Beckett, of New York City, is no longer engaged in veterinary practice.

Dr. W. E. Martin, of Winnipeg, Manitoba, conducts a horseshoeing shop in connection with his practice.

Dr. L. A. Merillat, of Chicago, Ill., is one of the busiest practitioners of the Western cities. Active professional work, college teaching, association work, legislation halls, State board duties, and journalistic ambitions make strong demands upon his time and call for much labor, energy, and methodical work.

Dr. Francis Bridge, of Philadelphia, is extensively interested in the building up of one of the most popular residential sections of the "City of Brotherly Love."

Dr. J. C. Foelker, of Allentown, Pa., is a frequent visitor to the "Quaker City," and on one of his recent visits to this city was invited to dine at the University restaurant, so well known to every U. of Pa. boy the past ten years. He was so struck with the building's shape and interior arrangement that he gave it the lasting name of "Noah's Ark."

Dr. Alexander Glass, of Philadelphia, Pa., a member of the Corinthian Yacht Club, was among those who were struggling for club trophies with his yacht in the mile run on May 26th.

Dr. Thomas B. Rogers, of Woodbury, N. J., is preparing a dose-book and brochure of remedies indicated in the various diseases of the domesticated animals for one of Philadelphia's most progressive medical firms.

Editor Hoskins, of the JOURNAL, is basking in the realms of peace, while his successful adversary in the Mayoralty fight in the "Quaker City" is writhing under the scathing criticism of an enraged people. "Uneasy lies the head that wears a crown."

State Secretary Ridge, of Pennsylvania, has been one of the most thoroughgoing representatives of the A. V. M. A., and is a strong example of one who believes "what is worth doing is worth doing well."

Drs. Budd, Harker, and Runge, of New Jersey, visited Washington in May in the interest of the army veterinary bill. They represented the State Association and interviewed the Congressmen from that Commonwealth, seeking their support in the House.

Dr. Charles Lintz, of Chester, Pa., recently underwent a serious surgical operation for a long-standing condition. His recovery was prompt and the relief complete.

Dr. M. Jacob, Resident Surgeon of the Veterinary Department of the University of Pennsylvania, was a visitor to his former home in May. The frequency of these visits is said to excite suspicion and comment among the boys.

Dr. John J. Cattanach, of New York City, will fill the rôle of veterinarian to the Atlantic City, N. J., horseshow, July 11th to 14th, inclusive.

Dr. Oscar Seeley, of Philadelphia, will spend the summer at the Beechwood Inn, Jenkintown, Pa.

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ON CARCINOMA IN CATTLE.[1]

By Leo Loeb, M.D.,
ASSISTANT PROFESSOR OF PATHOLOGY IN THE CHICAGO POLICLINIC,
AND
George Jobson, D.V.S.,
GOVERNMENT MEAT-INSPECTOR.

Preparatory to certain investigations on carcinoma, we first had to examine the occurrence of carcinoma in cattle. Inasmuch as it seems to us that they may be of some general interest, we will give a short account of a few of the results obtained.

In looking over the special works on the pathology and therapeutics of domestic animals, we find but little on carcinoma. In Kitt's *Pathological-anatomical Diagnosis* (Stuttgart, 1894) we have thus far found the best record of the reported cases of carcinoma. We find relatively a small number of isolated cases of carcinoma of cattle reported, usually only a single case in each instance, of carcinoma of the mammary gland, of the gall-bladder, perhaps of the second stomach, and carcinomatous ulcer of the first stomach of cattle, carcinoma of the bladder, ovary, and uterus, and also adenocarcinoma of the kidney. Among these cases only a certain number seem to have been carefully examined microscopically. In a special work by G. Woodruffe Hill (London, 1881), entitled *Bovine Medicine and Surgery*, we find, under the designation " Cancer," various tumors, like carcinoma and sarcoma, undifferentiated. Thus he describes a cancer of the maxilla, which, according to illustration and description, might perhaps as well be a periosteal sarcoma as a carcinoma. His description of cancer of the eye, called fungus hæmatodes, so far as its macroscopic appearance is concerned, is incorrect. The tumor is said to originate behind the eye, causing it to protrude, but we will presently see that the origin and development of the tumor is of quite a different type. There is no mention made of microscopic examination.

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[1] Read before the Chicago Academy of Medicine, Feb. 9, 1900.

Our results are based on the statistics of the cases of carcinoma in cattle at the Stock Yards since July, 1898, in which the principal organs were examined postmortem. In sixteen cases, from September, 1899, to February, 1900, a fuller postmortem examination was made. In a number of instances in the cases last mentioned, microscopical examinations were made of such organs and lymphatic glands in different parts of the body as had a suspicious appearance. Our present report sets forth only the results thus far obtained. We hope to collect additional material.

The first question is: Where do we find carcinoma in cattle? So far we have found it in two places, viz., at the inner canthus of the eye and on the vulva. We must add, however, that all the cases thus far seen, with the exception of one carcinoma of the vulva, were carcinomata of the inner canthus of the eye. Therefore, by far the largest majority of cases of carcinoma we find in this one place. Just as we have found one case of carcinoma of the vulva, we may expect to find an occasional carcinoma at some of the other places mentioned in literature. But it is important to emphasize the predominance of carcinoma at this one point, as shown by our examinations, as far as they have gone up to the present. Further investigations may possibly modify our results to some degree.

The second question is: How often do we find carcinoma in cattle? The following tabulated statement will give us information on this point:

From July, 1898, to January, 1899, but four cases were seen. These were observed during the month of October. No case in November and December, 1898. From January 1, 1899, to January 1, 1900, we counted forty-eight cases of carcinoma.

The following is a monthly statement of the number of cases examined: January, 1899, none; February, 6; March, 3; April, 2; May, 2; June, none; July 3; August, 3; September, 4; October, 2; November, 9; December, 14; total, 48.

So we find in one year (1899) forty-eight cases at the Stock Yards. In addition there have been in the last two years two other cases of carcinoma reported at the Stock Yards, but which were inaccessible to examination. That would bring the number up to forty-nine cases in one year. In the same year 2,514,446 head of cattle were received at the Stock Yards, so that there was one carcinomatous animal in every fifty thousand. Of course, this can only give an approximate idea of the frequency of carcinoma, and only upon the supposition that as many carcinomatous cattle are delivered at the Stock Yards as non-carcinomatous cattle. This may easily be the case, the owner of the carcinomatous cattle getting some pay also for the diseased cattle, and in this way running no risk of losing all, should the animal die.

Concerning the sex of diseased animals, there is one fact which at first glance seems very remarkable. Of the sixty animals examined, fifty-nine were cows, and only one animal was a steer, about six years old. This one steer was perfectly white. It is indeed a fact that animals without pigment behave in certain ways differently from pigmented animals; thus we find melanotic sarcomata, as is well known, usually in white horses. But this apparently remarkable fact touching the distribution of sexes will be explained, if we take into account the circumstances that steers are usually killed when young, often before the sixth year—the majority of them when quite young—the cows becoming much older. All the cows coming to the Stock Yards with carcinoma were from six to fifteen years of age, therefore of greater age than steers usually attain. Still we cannot absolutely deny the possibility that sex may have something to do, after all, with the frequency of carcinoma in cattle. It is, however, much more probable that the remarkable findings in this respect are to be explained by the difference in age. Thus it seems that carcinoma in cattle, as in man, is a disease of advanced years of life.

How does the development of carcinoma affect the general state of health of the animal? All the animals affected with carcinoma were very much emaciated. This loss of weight was already present when the carcinoma was not very much ulcerated. The emaciation was most pronounced in the animals most affected by carcinoma. Metastases in the inner organs had nothing to do with this effect, as we shall see later on. But how far this effect is to be attributed to carcinoma, and how far to ulceration (occurring also in the beginning, but in a slight degree), it is difficult to state.

We made a number of inquiries as to the rapidity of development of carcinoma, the external circumstances that might influence the disease, and the first changes visible. Most of our attempts to get information from the proprietors have been unsuccessful thus far, but through the kindness of Dr. Holcombe our attention was directed to a cattle ranch near Cheyenne, Wyoming, whence we received some information. Here is a ranch which keeps about a thousand cattle, about two thousand coming and going during the year. On this ranch were found every year one or two cases of carcinoma of the eye. This observation covers a period of ten years, as the proprietor informed us in answer to our written inquiries. According to Dr. Holcombe, who lived in this neighborhood as military veterinarian, the ranches in the adjoining district of equal size are practically free from this disease. Thus it seems that carcinoma of the inner canthus of the eye is almost endemic on this one ranch. That the disease is not very rapid can be inferred from the statement of the proprietor of this Wyoming ranch, that pregnant carcinomatous cows are expected to give birth to calves. The first symptom noticed is what the proprietors call a "running eye."

What is, then, the development of this carcinoma of the eye, known among veterinarians under the name of fungus hæmatodes? We saw two cases where the lesion was still in a comparatively early stage. We will describe such a case. In the region of the caruncula, which in normal animals is about the size of a pea, rather deep-seated, just between the opening of the lachrymal ducts, and covered with hairs, we see a papillary elevation about the thickness of a finger. The membrana nictitans, which is very large in cattle, and is pushed forward laterally when a foreign body is in the eye, was slightly thickened, very little ulcerated, the ulceration being barely visible to the naked eye. The conjunctiva of the lid was almost normal, but near the inner canthus could be seen a number of small nodules, which pushed forward the conjunctiva in a few places. There was a slight ulceration of the mucous membrane of the conjunctiva. The skin around it was normal, as always in young cases.

A case further advanced presents the following picture: In the region of the inner canthus we see large tumor masses, which appear papillomatous, especially on sectional view. They are ulcerated on the surface, and covered with the remnants of old hemorrhages. The lower and upper lids, especially on the conjunctival side, are ulcerated, and sometimes partially grown together. The eye is displaced latterally and backward. The cornea is opaque. If one opens the orbital cavity, one will find tumor masses in the orbital fat. If the carcinoma is already far advanced, it penetrates into the bone, and may break through in different directions. For instance, we may see the tumor penetrate into the antrum of Highmore, as a round body covered with small protruding nodules that indicate the direction of growth. In some cases we may also observe how the carcinoma begins to penetrate into the eye. We observe this at the cornea, as well as at the junction of the cornea with the sclera, and likewise further backward into the sclera toward the choroidea. Later on the eye will be entirely destroyed. Out of a total of thirty-two cases we found the eye destroyed in six, and the bone affected in fifteen.

What do we find with reference to metastases? In thirty-two cases, where the lymphatic glands and the inner organs were more carefully examined with this point in view, we found the retromaxillary gland affected twenty times, and as a rule changed into a large metastatic tumor with some remains of lymphatic tissue; twelve times, viz., in the twelve least advanced cases, we found the lymphatic glands free of metastases. The macroscopic findings were confirmed in a number of cases by microscopic examination. Once we found the submaxillary gland, once the retropharyngeal gland, once the anterior mediastinal gland, similarly enlarged and changed. In these last three cases it was impossible to examine the glands microscopically. Once we found a metastatic infiltration in the masseter muscle of the same side. We also examined microscopically a number of lymphatic glands in other parts of the body—cervical, submaxillary, bronchial, mediastinal, portal, and mesenteric glands, with somewhat suspicious appearance—always, however, with negative results. Similarly we could find neither macroscopically nor microscopically any metastasis in the inner organs. Although we found extremely large metastases formed in the retromaxillary gland, even in the majority of cases, we found no further metastasis, with the exception of the few cases mentioned, where probably a neighboring gland was affected. In one case where we were induced to microscopically investigate the lungs with the bronchial glands, we found in both signs of tuberculosis—

necrotic tissue and typical giant-cell tubercles. Tubercle bacilli were not demonstrated, as bacterial stains were not employed; but the structure of the giant cell and its connection with the surrounding tissue exclude a foreign body as the exciting cause. To this combination of tuberculosis and carcinoma in cattle we shall also give attention in further investigations.

Two cases of carcinoma among the sixty investigated excited our special interest, because in these cases there were present in the same animal two carcinomata, the carcinoma of the vulva, already mentioned, and in the second case the inner canthus of both eyes was affected with carcinoma, the disease being further advanced in one eye than in the other. In the case of carcinoma of the vulva (which, by the way, was more ulcerated than the carcinoma of the eye) we found by macroscopic and microscopic examination distinct carcinomatous nodules beneath the mucous membrane. But the inguinal lymph glands in this case were microscopically found free from carcinoma. If we consider how rarely, relatively speaking, carcinoma occurs in cattle (according to our investigations about one case in fifty thousand), the occurrence of a double carcinoma in two of the sixty cases is surprising. Whether we are to regard this as an autoinoculation in the case of the vulvar carcinoma, possibly caused by the rubbing of the head at the vulva, or whether there were certain constitutional conditions necessary for the occurrence of carcinoma which made multiple occurrence easy, must at present be left undecided.

Histological examination showed the carcinoma of the eye to be one of stratified epithelium with horny changes and epithelial pearls, as they can be observed in carcinoma of stratified epithelium from various other places. The metamorphosed epithelium showed less horny fibres, or lamellæ, than compact horny layers, such as take up eosin very readily. This character was most pronounced in the cases not very far advanced, in which we found a papillomatous elevation in the region of the caruncula. Here we found stratified epithelium arranged around the hairs and then penetrating into the deeper tissues, forming horny masses in the centre of the alveoli, red-stained with eosin. In other cases already further advanced we were never able to see anything of the caruncula.

If we follow microscopically the development of the carcinoma, we find in comparatively fresh cases the carcinoma in the deeper part of the membrana nictitans. In many cases we are able to see the mucous membrane of the membrana nictitans intact over the tumor. In other places probably a secondary union of the tumor and mucous membrane has taken place. In still other places the mucous membrane is thrown off, and the growing carcinoma takes its place. Often in these cases it is difficult to see where the tumor begins and the mucous membrane ends.

In the connective tissue of the membrana nictitans at the side of the hyaline cartilage, which lies in the centre of this fold, we find a rather large gland, the so-called Harder's gland, which penetrates deep into the orbital cavity. In no case was it possible to see the transition of this gland into the tumor. Both were separated by connective tissue, or possibly the tumor had entirely replaced one lobule of the gland. The glands sometimes showed degenerative changes. We find occasionally the remains of a gland duct in the tumor tissues under these conditions. Other small glands in this region are also occasionally surrounded by the tumor, but there is no indication that the tumor originates from these glands. That supposition would be excluded, furthermore, by the histology of the tumor, as above described.

In the orbital cavity we also find the glandular nodules and the nodules of the tumor sharply separated. From thence the tumor penetrates further beneath the conjunctiva of the upper and also of the lower lid. The relation of the tumor to the mucous membrane of the conjunctiva at this place is similar to that in the membrana nictitans. Often one can see distinctly beneath the mucous membrane a layer of lymphocytes, and beneath these the tumor, but in other places the pressure of the tumor destroys the mucous membrane. The carcinoma may then grow up and include the remains of the mucous membrane.

If the tumor penetrates into the eye we find at some places the chromatophores of the iris and choroidea between the alveoli of the tumor. Frequently the tumor is surrounded by small round cells, which show at the side of the tumor not infrequently the character of plasma cells—just as the mucous membrane of the conjunctiva, which lies near the tumor, is accompanied by lymphocytes.

The bloodvessels near and between the tumor masses are often affected by endarteritis. The connective tissue, especially in metastases of the lymph glands, we find occasionally tendon-like. The tumor itself, during its progressive penetration into the surrounding tissues, retains on the whole its character; but sometimes we find, instead of the horny changes inside of the alveoli, loosely arranged hyaline, carcinomatous cells. The character of the tumor also remains unchanged in the metastases of the lymph glands. At some places we see the tumor cells penetrating between the lymph cells.

These histological findings with macroscopical observations make it at least very probable that the tumor originates from the epithelium of the caruncula or the conjunctival epithelium just surrounding the caruncula. In our future investigations we shall endeavor to find, if possible, still earlier stages, and if these should modify our conclusions we shall communicate it.

The carcinoma of the vulva shows on the whole the same character as the carcinoma of the eye. But this alone does not warrant the conclusion that the one carcinoma has been transplanted from the other, because already in the normal mucous membrane we find at both places stratified epithelium. One similar carcinoma of the vulva we find recorded by Bang, Stockfleth.

In conclusion we desire to emphasize once more those of our findings that may be of general interest:

1. Through these investigations we shall be enabled to get an insight into the relative frequency of tumors in men and in animals. According to Prussian statistics one death in from thirty to fifty is caused by carcinoma. The average annual death-rate of a standard million human beings (above thirty-five years of age), from 1881 to 1890, in England and Wales, was 1844—*i. e.*, 1.8 per thousand. The annual death-rate per million of all ages, from 1891 to 1895, in England and Wales, was 712—*i. e.*, .7 per thousand. In 1899 we find in cattle one case of carcinoma in fifty thousand. If the statistics, which we intend to continue collecting, should show in the following years a similar proportion, carcinoma in cattle would be about one-fiftieth to one-seventieth less frequent than in man.[1] But certainly these statistics as to the total occurrence of carcinoma in cattle can only be regarded as provisional, if we take into account the great difficulty of making statistics of beginning carcinomatous changes among two and one-half million

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[1] A. Newsholme: Vital Statistics, London, 1899.

cattle in one year. However, probably no place offers so good an opportunity for gaining these data as the Chicago Stock Yards. These statistics are of importance, and some way should be found to discover with still greater accuracy the frequency of carcinoma among cattle.

2. The place where carcinoma is found most frequently in cattle is where, through the running of the tears and the motion of the membrana nictitans, foreign bodies entering the conjunctival sac are deposited, and where these foreign bodies can easily be kept back by the hairs of the caruncula. This is favored by the fact that in cattle the caruncula lies somewhat deeper, just between the openings of the superior and inferior lachrymal ducts, and the hairs may also favor the retention of foreign bodies just at this place. But whether the foreign bodies cause the development of a carcinoma by continuous injury, or whether the foreign bodies which are the cause of carcinomata must be certain parasites, our findings do not allow us to decide. So far we have been unable to ascertain from the proprietors whether there exist any peculiar conditions on this Wyoming ranch in regard to the water supply or to the feeding of the animals. We must, therefore, leave it undecided for the present if these observations must be explained by infection from animal to animal or by infection from an external agency. But certain observations previously reported, especially by Behla, in *Centralblatt für Bacteriologie*, 1898, proving in human beings the endemic occurrence of carcinoma in Kalau, seem to be more easily explained by parasitic infection. Behla believes certain organisms of myxamebic character, which infect certain vegetables, to be the cause of this endemic occurrence of carcinoma. But Behla, as others before him, emphasizes the possibility that different carcinomata may be caused by different organisms. Fiessingen, Noel, Armaudet, Sorel, Viguès, and Gueillot,[1] had already, before Behla, reported cases of endemic occurrence of carcinoma in France. Fiessingen and Noel made certain fungi responsible, which are found especially on trees, and which cause there certain tumor-like formations. The proprietors of the ranch with which we have been in communication denied knowledge of any peculiar conditions existing on their farm. Our attention is especially called to these questions by our observation

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[1] Cited from Lubarsch u. Ostertag, Ergebnisse der Allgem. Pathologie, 1896.

of the almost endemic occurrence of carcinoma on this ranch, but only by further researches can it be decided if a parasitic cause is present. So far we certainly could not find in the carcinoma any coccidia or yeast-like bodies, the appearance of which could just as well be explained as products of the epithelial cells. Certainly the investigations of the last ten years have at least proved that by simple microscopic examination and staining, the question whether we have to deal with parasites, or with metamorphosed cells or parts of cells, cannot be decided. An interesting discussion of the facts suggesting the parasitic origin of cancer we find in Roswell Park's recent papers—"Cancer as a Parasitic Disease," and "A Further Study into the Frequency and Nature of Cancer."—(*Medical News*, April 1, 1899).

3. We found in our observations a very instructive demonstration that, besides the external exciting causes, there are some other factors of importance in the development of carcinoma, as, for example, the age and possibly also the sex of the animal. In this connection it is well to remember that the statistics of Finkelnburg and Spencer Wells show that in the human race also the female sex is oftener affected by carcinoma than the male, though in the human race carcinoma of the face and extremities seems to be more frequent in males, probably because they are more exposed to injuries than females. But difference in exposure to injury does not apply to cattle; here we find it more frequently in the female. In young animals all these external irritations or parasites, if parasites be present, do not seem to be able to produce carcinoma.

4. Another observation of general interest is the constant absence of metastases in the deeper lymph glands or other organs, although the metastases in the retromaxillary lymph gland very often attain a great size.

The question arises, Does secondary destruction of carcinomatous epithelium in the deeper lymphatic glands take place? Frequently we find in the lymphatic gland necrotic parts and hemorrhages, which prove pathological processes.

Our attention will also be directed in the future to the interesting occurrence of multiple carcinoma. We intend to continue our investigations in these and other directions.

NOTE ON EXAMINATION OF MILK FOR TUBERCLE BACILLI.

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AFTER having tried various methods for the detection of tubercle bacilli in suspected milks, I can recommend the following as being that which in my hands has given me most satisfactory results.

The milk to be examined should be collected fresh in sterilized bottles, preferably those holding about eight ounces, and these bottles should be closed, not by cork, but by a tampon of (non-absorbent) cotton-wool. Such milk can be examined immediately, or if it be kept for a time 2½ per cent. glacial carbolic acid should be added as a preservative, and the bottle be put away in a cool, dark cupboard.

In either case, whether employing the fresh or the carbolized milk, an equal quantity of water is added to the milk, which is then shaken briskly, and samples are taken and centrifugalized. My usual procedure is to take another bottle of the same size and divide the milk between the two, adding to each the equal amount of water.

It is difficult to make any statement as to how long centrifugalization should occur, different workers employing different forms which rotate at very various speeds. Using an electrical centrifuge, I generally leave the tubes of milk for at least half an hour.

After centrifugalization the sediment is removed with a fine pipette, and a drop of this is placed on a clean cover-glass, formed into a film, dried, and then stained by the ordinary method (carbol fuchsin, followed by Gabbet's blue). To obtain good results I have found that the method of floating the cover-slip "butter-side down" on the surface of heated carbolic fuchsin in a water-glass is far preferable to the method of pouring the fuchsin on to the surface of the cover-slip and then boiling over a flame.

I may add that after this dilution of the milk with an equal quantity of water so little fat material comes down in the sediment that it is unnecessary to use ether or other reagent to dissolve off the fat. Where the cream and surface layers after centrifugalization are examined for the bacilli it is necessary to dissolve off the fats. Using this method it is my experience that it is a simpler and surer method to examine the sediment.

HEALING OF EXTERNAL WOUNDS.[1]

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The particular phase of the subject to be discussed in this paper is that relating to the pathological processes in the healing of wounds and with no particular reference to their treatment. The discussion will also be principally confined to wounds of such a size and conditions as are healed by the visible formation of new tissue and less fully to those which heal by primary union. There are two reasons why this part of hypertrophy and regeneration of tissue is selected. First, because such wounds are of everyday occurrence, and therefore important; and, second, because the subject is too vast to discuss in its entirety.

It is said "that a wound is a recent solution of continuity of the living tissues induced by some mechanical cause." Some writers hold that all wounds are on the outside surface of the body, involving an abrasion of the skin, but this will hardly cover contused wounds. While external influence may hasten or retard the process of repair they will not be considered except when suppuration intervenes.

The processes of repair apparently vary according to the severity of the injury, while in fact they are practically similar except in extent and length of time necessary to recovery. The exceptions to this are two: First, those where there is such a trifling destruction of cells that simple regeneration of the essential surrounding cells is sufficient for repair. Secondly, where the wound is somewhat greater in extent, but still within the capacity of the connective tissue to repair by hyperplasia and regeneration without the intervention of embryonic and granulation tissues.

By healing is meant the removal of foreign material from a wound and the replacement of the destroyed or degenerated tissues by new tissue. Hyperplastic and regenerative growth of tissue is ushered in by cell-multiplication, by karyokinesis, and are inseparably associated with the phenomena of inflammation. In fact, so much so that it is impossible to consider one subject without involving the other. Proliferation occurs most readily when there is little inflammation present and only a slight exudate, for the presence of any irritant retards the process by increasing the inflammation and exudation, and may lead to suppuration.

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[1] Read before the June meeting of the Missouri Valley Veterinary Medical Association.

The ability to form new tissue lies in the proliferative faculty of the cells. These do not multiply under normal conditions, but when a wound is to be repaired some kinds of tissues proliferate with readiness and rapidity.

Hyperplasia and regeneration of tissue are by no means confined to the repair of wounds, for they always accompany productive or proliferative inflammation. It is found that in the connective tissues is a reserve force which is ready and convenient, whenever the tissues surrounding a wounded area, whether due to injury, degeneration, or necrosis, cannot repair the breach. If the injury is beyond the capability of the surrounding tissues to repair, the space is filled by connective neoplasia or scar-tissue. Because inflammation is always present in these processes it has been called proliferative inflammation, and it is present regardless of the presence or absence of foreign material. If proliferation is repeatedly interfered with, as, for instance, because of great irritation by pathogenic germs or external violence, the cells lose their power of regeneration, and an ulcer is the result. On the other hand, proliferation in a healthy patient may be so active and extensive that exuberant granulations appear with a considerable thickening of the adjoining parts. At this stage anything that will reduce inflammation will check granulation.

Wounds are divided according to cause into: Incised, punctured, lacerated, contused, etc. In veterinary practice external wounds are generally infected. This condition it is impossible to avoid because of septic surroundings and the impossibility in many cases of applying a bandage.

Wounds are said to heal by first intention, second intention, granulation, etc. The reparative process is much the same in all of these, for in all there has been destruction of tissues, and regeneration is necessary to repair. Therefore such a classification seems unnecessary except as a matter of convenience. There is a macroscopic difference in the healing of a wound whose edges are held in close apposition and whose changes are hidden from the eye and that of a large, open wound where the granulations can be plainly seen, but practically the means of repair are similar.

Healing by first intention occurs in slight septic wounds where there is a little destruction of tissues, in incised wounds and where the edges can be brought in close apposition. If there is no foreign material to be eliminated there should be an almost imperceptible amount of inflammation present and very little exudate to be absorbed or otherwise disposed of. Union is then hastened by plastic adhesion of opposing edges by means of the serous exudate. This adhesion plays a passive part in regeneration of wounds and, as repair progresses, is absorbed.

Adhesion has been mistaken for healing and desiccation of the exudate for the immediate formation of a scab. That this adhesion is not healing is proven in cases where pus-germs have been inclosed. In a day or two these germs, in presence of excellent nutrition, proper temperature, and moisture, multiply with the formation of pus, and the exudate softens and gives way. Immediate union is impossible. Adhesion may be sufficiently firm to require no bandage to keep the parts in apposition, but it is not healing.

The writer is convinced that plastic adhesion has taken place in wounds which have been said to have "healed in a few hours" or even in a "day or two" and not healing. This adhesion aids the reparative process by holding the edges of the wound in close apposition, preventing motion of these edges on each other and excluding foreign materials. The presence of any foreign material will prevent healing by primary union, because it becomes an irritant, setting up increased inflammation, with its attendant phenomena of emigration of leucocytes and formation of pus. Even extravasated blood if in appreciable quantities becomes a foreign body and an irritant, and furnishes a medium for the propagation of bacteria. In no instance is it possible for this extravasated blood to assist in the process of repair, and it is a common mistake for veterinary surgeons to bind up a wound before hemorrhage ceases. The blood, too, may form a clot in the wound, prevent all possible contact of opposing edges, and thus give a cavity which later must be filled by granulation.

When a small, aseptic, incised wound is closed by sutures an exudate takes place from the suture opening. This is because the sutures have made a small, open wound with destruction of more or less tissue. It is nicely illustrated by a neat operation of plantar-neurectomy. If the injury is very slight new cells are soon formed to replace those destroyed, with little or no change in structure, and is the nearest possible approach to immediate union. In this case, the earliest signs of proliferation may be seen in about eight hours after infliction of the injury, and very readily seen after twenty-four to forty-eight hours. In wounds of a somewhat larger size there is infiltration of the surrounding tissues, exudate upon the cut surface, and later proliferation of connective tissue from the sound tissue through the infiltrated area and into the wound, which finally firmly binds the edges and constitutes healing by primary union. Proliferation of epithelium completes the process.

As an aid to primary union these steps should be observed: First, arrest and prevent hemorrhage; second, to remove all foreign substances; third, apply suitable bandages, both to keep the parts in close approximation and also to prevent the entrance of pathogenic germs. About the shortest possible time for these wounds to heal under the most favorable circumstances is seven to eight days.

Healing by granulation or so-called second intention is seen in wounds where the changes are visible to the unaided eye and where there has been extensive destruction of tissue. This process consists of three stages: First, the formation of a deteriorated or embryonic tissue, which develops into, second, granulation tissue, and third, completes the repair by a further change into cicatricial tissue. This process is entirely competent to repair any wound or to make an uninterrupted continuity of tissues. The repair is not of normal tissue, and there is a loss of function because of the intervention and usually the preponderance of the connective tissue. The normal tissues do not possess the ability to close up the wound.

Embryonic tissue consists largely of cells and bloodvessels, and is never found except where it is beyond the ability of the surrounding tissues to repair the injury. The cells are mostly small, rounded in shape, and infiltrated with leucocytes —mono- and polynuclear—which have emigrated from the circulation. The number of leucocytes determine the intensity of the inflammation present, and conversely the rapidity of recovery. The cells of embryonic tissue have been called proliferative or formative cells, because they give rise to the future tissue. In the early stage of its development it depends upon the tissue from which it sprung for its support, but later bloodvessels quickly develop for its sustenance and growth.

The bloodvessels proliferate by a process of budding or sprouting from the neighboring uninjured vessels, and develop rapidly with the formation of numerous loops which give a reddish color to the tissue. About each loop is a collection of cells which give to the tissue a beady appearance. The rich vascular supply favors a rapid cell-growth and an abundant proliferation. From connective-tissue cells fibroblasts are formed, which change into branch and spindle-shaped cells and later lie closely together, forming the bundles of fibres which constitute the cicatricial tissue. Granulation tissue is the next stage, and is developed from the embryonic by the formation of cellular elements similar to the parent tissues. Part of the cells are in large or hypertrophied tissue cells which undergo division and enlargement indefinitely, depending on the extent of the injury and favorable termination of the whole process. When it develops into granular masses it is popularly known as "proud flesh" and is a source of uneasiness to the layman. While it is confined to the cavity which it attempts to fill, or does not project beyond the edge of the wound, no interference is necessary, as it is the proper and only means of repair. This tissue is also very vascular, and is very easily injured because it has no protective covering.

The third stage is the development of granulation into cicatricial or scar-tissue. This is accomplished through the formation of branched and spindle-shaped fibroblasts which unite into bundles. Proliferation of the epithelium has followed the filling up of the cavity as far as possible, and when it ceases the rest of the new tissue is covered by a dense layer of cicatricial tissue or "scar." At this stage the scar is reddish in color, smooth, devoid of hair or glands of the skin and tender to the touch. With the formation of cicatricial tissue the reparative process is completed, although changes still occur. Contraction begins, causing atrophy of all its tissues. Bloodvessels, nerves, and connective tissue diminish, and consequently the size of the cicatrix, and may lead to deformity and partial loss of function. It becomes of a dense white appearance and approaches more and more to the tissues from which it springs. These latter changes may spread over a period of several months.

At the risk of being tedious I will refer quite briefly to the important phenomenon of phagocytosis, by means of which pathogenic germs are destroyed. It is held by some pathologists that phagocytosis begins with the emigration of leucocytes, but later is actively carried on by the phagocytes and fibroblasts or cells of connective tissue origin. When only a few bacteria are present they may become a prey to the leucocytes, and if no other germs gain access to the wound infection will not follow. There is little doubt but that this process plays an important part in the healing of wounds by preventing in part or entirely the multiplication of bacteria. This phenomenon is accomplished by the amœboid movement of the leucocytes, each cell inclosing a germ. The fibroblasts may close half a dozen cells, as the leucocytes do the cause of infection or any other cells, living or inert. The bacterium may be retained until destroyed or carried into the lymphatic system and deposited in a lymphatic gland. Sometimes the bacterium is too virulent and destroys the leucocytes, and so obtains its freedom. As phagocytosis tends to limit the multiplication of pathogenic germs, and in that way prevents an increase in extent and intensifies inflammation, so its effect on regeneration will be appreciated when we remember that wounds heal most quickly when there is no infection and but little inflammation present.

DEFECTIVE EYELIDS.[1]

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IN the present discussion of this subject I desire to confine myself to three conditions that are most generally congenital, namely, ectropion, entropion, and blepharostenosis.

Ectropion. The name signifies an everted eyelid, either from an insufficiency of the skin of the lid, a destruction or shrinking of the same from injuries, an over-development of the mucous membrane, or insufficiency of the orbicularis palpebrarum muscle, either of which causes a displacement of the eyelid, turning its conjunctival surface outward, with, if it be the lower lid, a downward displacement of the ciliary margin, or an upward displacement of the same if it be an upper one. The eye, thus being deprived of its natural protection, is liable to chronic conjunctivitis, with all its accompanying evils. Ectropion is rare in equines and bovines, but common in the canines; especially is this so in the St. Bernard and English bloodhound.

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[1] Read before the June meeting of the Missouri Valley Veterinary Medical Association.

This condition is almost entirely confined to the lower lid, and its treatment depends largely on the cause. If it be from overdevelopment of the conjunctival membrane an elliptical piece of this should be removed in the following manner: The animal being placed under the influence of an anesthetic, the eyelid is everted and a portion of the membrane grasped with a pair of forceps and excised. The piece must be elliptical in shape and in size to correspond to the overdevelopment of the membrane. The outer incision must be parallel with the ciliary margin, and sufficiently far from it to allow room for suturing. The angles made by the counter incision, which is carried back of the forceps, should be near the inner and outer canthus. The incisions should be made straight through the membrane at a right angle to its surface so the edges will come together evenly. After the piece is dissected the edges of the membrane are to be brought together by sutures of a light, soft material placed so the knot will be as near as possible to the ciliary margin, where it will produce the least possible irritation to the eye, and left to heal by first intention, which should be assisted by mild non-irritating antiseptic dressings. The sutures should be removed about the fourth day.

If the lesion be simply tumefaction of the conjunctival membrane it may be penciled with nitrate of silver, by drawing the caustic from the inner to the outer canthus, just inside the ciliary membrane, wiping off the excess of caustic with cotton and protecting the parts by the application of a little bland oil.

The operation mentioned for overdeveloped membrane will be indicated if it be due to paralysis of the muscle. If due to insufficiency of the skin, it may be remedied by making a V-shaped incision with the base near the edge of the lid and the lid held in position by suturing the two lids together until the space between the edges of the incision is filled up by new tissue.

Entropion. The condition is the opposite of ectropion. The lid is inverted so as to bring the eyelashes in contact with the sensitive structures of the eye, causing traumatic conjunctivitis, with suppuration, granulation, adhesion, and finally, loss of sight. This condition is very much more common than ectropion. It is found in all our domestic animals, but most frequently in the dog, in which animal there appears to be more or less of an excess of skin. I am of the opinion that it is much more prevalent than most practitioners are wont to believe. The irritation and consequent pain cause the sufferer to keep the eye closed, which increases the pressure on and injury to the eye. The inversion may be the entire length of the lid or only a small part of it may be inverted. It may be turned in so that not only the lashes but the hair covering the skin of the lid is in contact with the eye; but in many cases only a limited number of the lashes touch the sensitive structure—called by some "trichiasis," which is merely a modified degree of entropion, and, owing to the very slight anatomical defect, much more difficult to diagnose.

One would naturally think that diagnosis would be easy, as the abnormality is in plain view, but such is not always the case. The constant pain causes the animal to keep the eye more or less closed, which hides the lesion. On careful observation, when the animal is not expecting you to disturb it, the opening to the eye will appear to be too small, then by comparison the ciliary margin will be seen to be displaced inward to a greater or less degree.

The condition is, in all probability, always congenital, although it may become more aggravated from the constant contraction of the orbicularis palpebrarum muscle, and is due to overdevelopment of the skin of the eyelid or, rather, too much skin for the mucous membrane, allowing the latter to draw the margin of the lid inward. May be either or both lids, but most commonly the lower lid.

Treatment consists in the removal of an elliptical piece of the lid, the same as of the membrane in ectropion. It is well to take up a piece of the skin with the forceps to determine just how much it is necessary to remove to bring the margin to its normal position, then remove the piece included in the forceps by making an incision through the skin from the inner canthus parallel to and just far enough from the margin to allow room for sutures, carrying it to the outer canthus or further if the skin be turned in at the canthus, then commencing at the same point near the inner canthus a counter incision is carried on the opposite side of the forceps to join the first at the outer canthus and the circumscribed piece removed, the edges brought together by closely placed interrupted sutures and treated antiseptically as an open wound, or the entire part closed by antiseptic dressings. If the latter is desired and both eyes are involved only one should be operated on at one time, leaving the other for use by the animal. The stitches may be removed from the fourth to the seventh day. Complete anæsthesia and cleanliness are essential to a successful operation.

Blepharostenosis. This is a congenital malformation where the opening to the eye is wanting or diminished in size or the margins of the lids unite from granulation of their surfaces as a result of disease or injury, causing complete ankylosis of the lids. Partial stenosis at the outer canthus is often seen in connection with entropion.

The treatment is similar, whether stenosis is partial, complete, or from adhesion by granulation. If complete the skin and membrane must be divided between the lashes from one canthus to the other and the mucous membrane sutured to the skin with close, fine interrupted sutures, with a view of getting union of the membrane and skin with the least possible granulation. As the latter is liable to reunite the margins of the lids, as a further precaution a suture may be placed through the skin near the center of one or both lids and the skin of the adjacent parts above or below, or both, to draw the upper lid up and the lower one down, so as to prevent contact of these margins until cicatrization is complete.

I know of no operation that gives better results than those just described, and if carefully and skilfully done the results are uniformly good.

THE RAPID DIAGNOSIS OF RABIES. PRELIMINARY REPORT.[1]

By Mazyck P. Ravenel, M.D.,

and

D. J. McCarthy, M.D.

(*From the Laboratory of the State Live Stock Sanitary Board of Pennsylvania and the Pepper Clinical Laboratory, University of Pennsylvania.*)

Before taking up the newer methods of diagnosis of rabies, as suggested by Babès, and later by Van Gehuchten and Nélis, it will be well to review the work which lead to the development of these methods. The work of Baltzer calling attention to the changes in the central nervous system was followed in 1874 by Benedikt's article, in which he described perivascular infiltration of leucocytes and erythrocytes. Kolesnikoff, in 1876, called attention to an invasion of the pericellular spaces by "indifferent round-cells" affecting the hemispheres, cerebellum, spinal cord, and the intervertebral ganglia. Schaffer likewise made a very careful study of the vascular and cellular changes, and called attention to "a hyaline and fibrillar degeneration and vacuolation of the anterior horn cells of the cord."

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[1] Read before the Pathological Society of Philadelphia, June 14, 1900.

Nothing of practical importance resulted from these studies until Babès, in 1892, published the results of his investigations in this field. He confirmed the work of Balzer and Kolesnikoff, described in detail the changes in the ganglion cells of the gray matter, and especially of the bulbar nuclei, and added what he considered to be the typical and characteristic lesions. They consisted of pericellular accumulations of embryonal cells, to which he gave the name "tubercles rabiques." The cells of the bulbar nuclei degenerate and present the various stages of chromatolysis. While this process is going on numerous nuclei are seen about the cell, and when the cell is completely degenerated these occupy the cell-area and constitute the "tubercle rabique." Babès, therefore, believes that microscopical examination of the cord furnishes us with the best means for the rapid diagnosis of rabies. Except in Babès own laboratory but little use has been made of this method.

Recently Nélis, working with Van Gehuchten, discovered in the spinal ganglia of two men dead of rabies, and in many of the lower animals, peculiar changes. Normally the intervertebral ganglion is composed of a network of supporting tissue holding in its meshes the nerve cells, enclosed in endothelial capsules. In the rabid animal an infiltration of leucocytes takes place in the stroma, and a proliferation of the endothelial cells of the capsule takes the place of the degenerating nerve cell. These changes are widespread and constant. There are but few unaffected capsules, and in advanced cases the section has very much the appearance of an alveolar sarcoma. Van Gehuchten and Nélis question the value of Babès' findings. They consider his cellular changes as secondary, and the rabic tubercle as inconstant and of little value for diagnostic purposes.

With a view of determining what of value there might be in these different methods, and to what practical use they could be put in our daily laboratory work, we have examined the cord, medulla, and intervertebral ganglia of a number of cases which have come to us for diagnosis. In this preliminary report six cases are detailed. By the fall meeting of the society we expect to be able to report more fully, and to give the results of a number of control experiments on this interesting subject.

Of the six cases studied, two were dogs and four rabbits. The medulla was hardened in formalin (10 per cent.), then changed successively to 95 per cent. and absolute alcohol. The tissues were cut for the most part without embedding, though celloidin was used in some cases. In all cases the changes noted in the intervertebral ganglia were constant, and corresponded to those described by Van Gehuchten and Nélis. Chromatolytic changes were present in all the cells when stained by the Nissl method, but the capsular changes were best seen in sections stained by hæmatoxylin and eosin. Since these latter changes are the essential diagnostic features of the sections, we would suggest that material unfit for the Nissl method would still show the capsular changes when stained by hæmatoxylin and eosin.

The ganglia from the rabbits showed the most advanced changes. The disease in them was experimentally produced by subdural inoculation with material from dogs. In both dogs distinct diagnostic changes had taken place in the cells and their capsules. The changes in the cells are as follows: A diffuse chromatolysis affecting all the cells first occurs, followed by a retraction of the cell from the capsule, and a proliferation of the cells of the capsule itself. These newly formed cells press on the degenerating ganglion cell, and its complete destruction is followed by the filling up of the capsule by the new cells. This stage was only occasionally seen in the ganglia from the dogs, there being usually a diffuse chromatolysis with proliferation of the capsular cells, not, however, to a sufficient extent to fill up the capsule and obliterate all trace of the ganglion cells.

We have examined also the medulla in all the cases for the rabic tubercles of Babès. They were present in five of the six; but the method is not so easily carried out, nor are the lesions so apparent on a rapid examination as in the method described by Nélis.

AN OUTBREAK OF TUBERCULOSIS AMONG CATTLE AT AN ALTITUDE OF 7400 FEET.

By S. W. McClure, V.M.D.,
HELENA, MONTANA.

While in the performance of my duties as deputy State veterinarian of Montana, I was ordered by Dr. M. E. Knowles to investigate the origin and extent of an outbreak of tuberculosis on the ranch of J. H. Baker and A. M. Davidson, of Madison County, Montana. The location of the ranch was such as to favor the cure of tuberculosis rather than its rapid spread and extreme fatality. The situation of this ranch was peculiar, and it seems strange that this extremely healthful situation was the first to give Montana a well-defined outbreak of tuberculosis.

The ranch comprises 4000 acres of level buffalo-grass range; its altitude, according to the geological survey, is 7400 feet, and the range itself is situated at the foot of a chain of mountains, the highest point of which is 11,334 feet above the sea. There being no fence along the bottom of these mountains, the cattle feed up the sides as far as it is possible to go, sometimes reaching the altitude of 9000 feet. The ranch is watered by a beautiful mountain stream, and about a mile from the base of the mountain there is a large body of hot alkaline water, of which I frequently saw the cattle drink.

This outbreak affords a good opportunity for a study of the contagiousness of tuberculosis, as Mr. Baker has been on this ranch for about twelve years, during which time he had made few changes in his original stock, which was composed of apparently healthy range-cattle. Five years previous to the time of my visit he had purchased a Jersey bull at a high price from an Eastern breeder. After having the bull in contact for about a year with his other cattle, numbering 150 head, he noticed that the bull had developed an enlargement of his jaws, that he made a loud noise in breathing and coughed considerably. The bull gradually became very thin, and Mr. Baker states he choked to death about one year after he was first noticed affected. An incision into the enlargement at his throat showed it to contain a large quantity of thick pus. Within the last two months, three other cattle have died after showing the same outward symptoms.

At the time of my visit, in April, I rode through the herd and picked out five cattle as probably tuberculous. I immediately killed and held postmortem examinations on the five condemned animals and found them to be in an advanced tuberculous condition, many of the glands having undergone cheesy and calcareous changes. The anatomical parts involved were as follows: postpharyngeal lymphatic glands, mediastinal glands, lumbar lymphatic glands, axillary lymphatic glands, mesenteric lymphatic glands. There were tubercular patches in the liver and, in one instance, tuberculosis of the meninges. The animals were all very much emaciated, and would have survived only a few months at the longest. The peculiar point in connection with the necropsy was the remarkable freedom of the organs of the thoracic cavity from any tubercular lesions, as only in one animal did I find a small, calcified, well-encapsulated tubercular area in the lungs. Three of the animals suffered from tubercular arthritis.

I report this case to show that tuberculosis may spread under the best sanitary conditions possible. The truth of this statement is seen when it is understood that there was no other possible source from which the infection could have occurred, except the said Jersey bull, and as the cases all appeared in three- and four-year old cattle, and as these cattle were on the range with the bull at the time he was noticed to be tuberculous, and as the cattle were never stabled, never fed from troughs or watered from any place but the mountain streams and hot alkaline springs, it shows that tuberculosis will spread under the best climatic conditions possible.

The cattle under consideration had never seen a stable, and had always been kept on the range excepting during a few very stormy days when they went into a little grove of pine-trees for shelter. There is also a log corral about ten feet high into which the cattle sometimes go when it is windy. The spaces between the logs of this corral are not chinked and it is covered with pine-boughs and straw. The cattle are all high-grade short-horns, except the Jersey bull that died and fifteen or twenty of his get. The cattle affected were not by the Jersey bull. The Jersey bull had been purchased for the purpose of raising a few cows for dairy purposes, and was not turned in with the general herd until the breeding season was over.

The absence of any lesion in the lungs was possibly due to the following reasons: The breathing of air free from dust and infectious microbes, the increased oxidation of blood and tissue from sunlight, cold air, and reduced pressure found at these altitudes; the increased quantity of blood circulating in the lungs caused by the reduced pressure, the freedom of circulation being aided by the increased chest movements seen in high altitudes.

It would be interesting to determine the extent to which tuberculosis is now prevailing in this herd, but as the application of the tuberculin-test is impossible under range conditions, we shall have to be content with a physical examination. Three other cattle show enlarged postpharyngeal glands and are now in quarantine.

The postmortem notes follow:

Case I.—Red heifer, aged two and a half years, much emaciated; she had just given birth to a dead fetus; had been noticed sick for three months. Owner had noticed enlargement of the postpharyngeal lymphatic glands for about the same length of time. Killed by shooting and then bled. Postpharyngeal glands much enlarged, cheesy and calcareous. In the centre of the gland about a cupful of creamy, tuberculous pus. Mediastinal glands in an advanced state of calcareous degeneration, but no pus present. Tuberculous area in the caudal lobe of each lung. The area was calcareous and cheesy and firmly encapsulated, and had no apparent blood-supply. Mesenteric lymphatic glands enlarged and cheesy. Costal pleura contained some few tubercles. The axillary glands and also the lymphatic glands of hock were tuberculous and much enlarged. Diagnosis, tuberculosis.

Case II.—Red steer, aged two and a half years, very much emaciated. Would stand for ten or fifteen minutes at a time and turn in a circle always to the left side, then get his head up into a corner and remain there until disturbed; always carried his head low and to the left side. Shot and then bled. Small tuberculous area in the caudal lobe of the left lung; mesenteric glands enlarged and œdematous, showing much evidence of inflammation; glands of the shoulder and hock tuberculous; calcified bodies between the skin and the inferior surface of the sternum, about the size of a large pinhead. The liver was small and atrophied. The gall-bladder distended. I think that this steer suffered from meningeal tuberculosis, but on account of being shot twice through the brain, I could find no trace of the lesion, perhaps, on account of the hemorrhage. Diagnosis, tuberculosis.

Case III.—Roan cow, three and a half years old, and in fine condition; sucking calf three weeks old. Shot and then bled. Postpharyngeal glands much enlarged; on incision revealed a cavity filled with pus. Tuberculous patches on the posterior surface of the diaphragm; tubercular nodules in the wall of the intestine. All other glands much enlarged and œdematous, showing evidence of chronic inflammation, but no cheesy tubercles present. Diagnosis, tuberculosis.

Case IV.—Black steer; emaciated. Shot and then bled. Postpharyngeal glands much enlarged; mediastinal and lumbar glands cheesy and calcified. Periosteum of humerus and of the knee- and hock-joints contained red ecchymotic spots, but no tuberculous ulcers apparent. This steer was very stiff in right front-leg and left hind-leg. Diagnosis, tuberculosis,

Case V.—Roan cow, aged four years. Postpharyngeal lymphatic glands much enlarged and contained tubercular abscess. Mediastinal glands; cheesy and calcified lungs normal; lumbar glands and mesenteric lymphatic glands tuberculous; tuberculous patches on the posterior surface of the diaphragm, and three tuberculous abscesses in the liver. Diagnosis, tuberculosis.

Heir-at-Law, 2.05¾, not long ago broke his leg while at play in his paddock. The fracture was a clean one, but the resident veterinary surgeon at the Village Farm set the bones; the horse was put in a sling and chances were taken on their knitting. This they have done to such good purpose and effect that Heir-at-Law is once again going around sound, and if one did not know that he had had his leg broken the fact would never be suspected from his appearance and gait.

When domestic animals have the opportunity to make a change of food they do so. This may be noticed when they are on the pasture, some being content with certain grasses, while others will seek some other kind. They also prefer a change at times in the winter, especially when they receive no food of a succulent character Provide ensilage, turnips, carrots, or any other kind of food other than dry grain and hay.

ABSTRACTS FROM FOREIGN JOURNALS.

Dourine and its Parasite. In the *Recueil de Médecine Vétérinaire* has appeared an article of great value and interest by G. Schneider and M. Buffard (the former an army surgeon, in charge of the Military Hospital at Oran, Algeria, the latter an army veterinarian), begun in the February number, and concluded in April. In the year 1896, Rouget discovered in the blood of a stallion with dourine a parasite of the genus Trypanosoma. He made an excellent study of this organism, which belongs to the family Cercomonas. He inoculated rats, rabbits, and dogs with the parasite, and recognized the striking analogy between the symptoms produced in the latter animal and those of dourine. The accidental loss of the parasite prevented Rouget from inoculating horses, and determining its specific character.

Schneider and Buffard have found again the parasite of Rouget, and have been able to prove its specificity. They review the classic picture of dourine as seen in the horse, the mare, the ass, and the she-ass, and add observations of their own, chiefly as to the appearance of cutaneous plaques. These appear forty, forty-five, and sixty days after the infecting coitus; they are usually unstable, and simple exercise may cause them to disappear. Sometimes they persist for five to eight days. Their appearance may be preceded by an eruption of buttons, which sometimes exude a serous fluid which glues the hair in masses. Treatment with quinine sulphate was tried, but though the sick animals seemed to improve for some days, the disease was not checked in its fatal course.

The authors found the Trypanosoma in the blood of two stallions and two donkeys. The character of this parasite is analogous to that producing "surra" and "nagana." It is easily stained by the methods commonly employed in bacteriology, but it has not been possible to cultivate it. It is not always easy to discover the parasite in the sick animal. It is found in blood taken about the seat of the engorgements and cutaneous plaques, and especially just at the time of their first appearance. According to the authors the formation of these plaques is due to the plugging up of the minute vessels by masses of the Trypanosoma.

The blood (even when it seems to contain no parasites), the semen, the vaginal mucus, and the softened portions of the cord, are virulent. Experimental inoculation is possible in the horse, ass, dog, rabbit, rat, and mouse; subcutaneous inoculation being the best method of procedure. Infection is also possible by coitus, intra-cranial inoculation, and by rubbing the virulent matter into the mucous membrane of the vagina or the conjunctiva. According to the resistance of the animal, and the number of parasites introduced, we obtain, especially in the dog, more or less grave manifestation of the disease. Nocard showed, in 1892, that intra-ocular inoculation of material taken from one of the softened areas in the cord of a horse with dourine, provoked in dogs a disease closely resembling dourine in the horse.

Schneider and Buffard have been able to bring about the same result by inoculation with the blood as well as the cord. They recognize four stages in the development of the experimental disease in dogs: First, incubation; second, œdema at point of inoculation, with heat and pain; œdematous infiltration at back part of abdomen and in genitals; balanitis in dogs; vaginitis and sometimes abortion in bitches; continued fever; third, emaciation, disorders of locomotion, the formation of cutaneous plaques, arthritis, purulent conjunctivitis, ulcerative keratitis. Lastly, in the fourth stage, there is extreme cachexia, with paralysis or death by syncope. Usually the evolution of the disease occupies a number of weeks.

In the horse and mare the authors find that between the spontaneous and experimental disease there is no difference either in the symptoms or in the lesions.

The morphology and evolution of the Trypanosoma was studied principally in blood taken from the cutaneous plaques. The parasite disappears very quickly from the blood of animals.

The authors give a detailed description of the various phases of the disease as it occurred spontaneously in an ass and a horse, and of the experimental disease in three horses. They succeeded in transmitting dourine from the horse to the dog, and *vice versa*. They also communicated the disease experimentally from the horse to the mare. They proved that a dog could contract dourine by coitus with a bitch experimentally infected, and that the rabbit may be infected in the same way.

Schneider and Buffard say that the affection produced in this way was unquestionably dourine. They have considered well the possibility that the disease they were studying might be "surra," and not dourine, the two diseases having certain points of resemblance, and both being caused by a Trypanosoma. They conclude that in both the spontaneous and experimental cases studied by them the disease was "absolutely differentiated from surra by the feeble thermic reaction, the engorgement of the genitals, the formation of cutaneous plaques, and the preservation of the appetite until death. In surra, on the contrary, there are intense fever, œdema of the belly and especially of the extremities, absence of plaques, and absolute loss of appetite. The mode of propagation by coitus is characteristic of dourine, while surra has an epidemic character, and has never been observed in Algeria."

Schneider and Buffard cannot believe that the Trypanosoma is an accidental and harmless organism in the disease. During five months they examined the blood of many animals—mice, rats, horses and stallions, dogs and fowls—with various diseases, chronic and incurable, without ever finding the Trypanosoma. They have also considered the possibility that they were dealing with cases of dourine, in which the Trypanosoma occurred as a complication, or in association with dourine. This objection they are able to rule out also, and conclude that the Trypanosoma described by them is the true and specific parasite in dourine.

Besides the great scientific interest of their work, it gives to veterinary medicine two means of diagnosis in doubtful cases—microscopic examination of the blood taken from the cutaneous plaques, and the inoculation of dogs.—*From the Laboratory of the State Live Stock Sanitary Board.*

Bulletin No. 65 of the Nebraska Experiment Station, prepared by Dr. A. T. Peters, covers the subject of "Blackleg: Its Nature, Cause, and Prevention." A general history of the disease and the value of vaccination is presented in a manner that will arouse the interest and support of stockowners and no doubt lessen materially the losses suffered from this fatal disease. Such work as this, while bringing but a slight direct remuneration to the veterinarian, makes sure and valuable his place and position in every community, and gives a helping hand to a large number of our people whose lot at best is a hard one.

DEPARTMENT OF CANINE AND FELINE MEDICINE AND SURGERY.

PROLAPSUS VAGINÆ IN THE BITCH; LUXATIO FEMORIS IN A LION; NYMPHOMANIA IN A CASTRATED FEMALE CAT.

By Cecil French, D.V.S.,
WASHINGTON, D. C.

Prolapsus Vaginæ in the Bitch commonly occurs as a protrusion of a congested portion of the vaginal mucosa associated with the advent of sexual excitement. It tends to occur periodically, and is then described as being habitual. It usually subsides with the departure of the heat, so that operative measures must not be considered imperative. It being an objectionable blemish, though only temporary, owners usually prefer to have the enlargement removed by the surgeon.

Removal may be effected by employment of crucial ligature with excision by the knife, by clamp and cautery, or by écraseur or emasculator.

The crucial ligature method is attended with an element of risk on account of hemorrhage, owing to the tendency ligatures have to slip from this character of tissue. The clamp and cautery method is effective in controlling hemorrhage but leaves an unnecessary area of scar-tissue. The écraseur lacerates the tissues considerably and is very apt to be followed by hemorrhage.

Removal by emasculator (small size) *with subsequent suture of the divided mucosa* must be given the preference for the reason that *simple* excision of a large prolapsus leaves a considerable area of tissue denuded of mucosa from which passive hemorrhage is prone to occur, owing to the physiological turgescence of the organs during the heat period.

The method I have found most satisfactory is as follows: A strong suture is passed through the substance of the tumor, by which the latter is withdrawn well out of the vagina. The urethral orifice is now sought and particular care exercised not to include the same in the adjustment of the instrument. After the instrument has been made to sever the prolapsed portion and before it is removed, a continuous silk suture is run through the approximated edges of the divided mucosa immediately beneath the clamped emasculator. The stitch is commenced furthest from the vulva and its nearest end is left long enough to hang out of the vagina, by which it can be removed in the course of five or six days.

Luxatio Femoris in a Lion. This animal is an inmate of the National Zoological Park. It had been lame in the right hind-leg for some two weeks. Close inspection through the bars of the cage showed the existence of a swelling over the hip-joint and an apparent shortening of the affected leg.

The keepers secured the animal by their usual methods and bound its fore-parts firmly to the bars. The door was then opened and the hind-quarters secured with ropes and drawn through.

Manipulation revealed a dislocation of the head of the femur. The latter was resting on the upper margin of the acetabulum.

Reduction of the luxation was effected in the following manner: Forcible traction was produced by two men pulling on the rope attached to the lower part of the leg, the latter being extended and at the same time abducted. Further assistance was rendered by one of the attendants exerting pressure over the trochanter with his heel. The animal apparently suffered much pain during the operation. Recovery was complete within three weeks. The injury was supposed to have been brought about by the animal striking its hip against the ironwork and slipping in its passage through a door from one cage to another.

Nymphomania in a Castrated Female Cat. In March, 1899, I removed from the abdominal cavity of a pregnant female cat both ovaries, oviducts, and the entire uterus, the latter containing six fetuses. A month later the animal exhibited a desire for sexual intercourse, and has been in the same condition ever since—a period of fourteen months. The owner refuses to permit me to conduct another laparotomy for explorative purposes, so that I am unable to satisfy myself as to whether I succeeded in removing both ovaries in their entirety or not. The fact that the "heat" in this case has been continuous would seem to indicate the presence of some morbid condition of the nervous system and not the functioning of a portion of an ovary remaining, in which case the "heat," as a rule, appears periodically at the usual season. The owner has never been able to catch this animal in coition, but her constant crying and the attentions of numerous members of the opposite sex leave no doubt as to her condition.

DEPARTMENT OF SURGERY.

By W. E. A. Wyman, M.D.V., V.S.,
BURLINGTON, WIS.

J. A. Sloan, B.Sc., M.D.V.,
SAN FRANCISCO, CAL.

Dr. Robert Jay, M.D.V.,
WEST LIBERTY, IA.

Penis and Sheath.

There are two diseases of the free portion of the penis and its cutaneous fold, the prepuce or sheath, which are very frequently met with, viz.: acrobustitis and balanitis.

Acrobustitis, inflammation of the sheath, or more particularly its mucous-membrane-like lining,

Balanitis, inflammation of the pendulous portion of the organ of copulation.

The former, at times quite stubborn to treat, and thus annoying, is primarily a sequel of emasculation, and therefore more commonly seen in the gelding. Inactivity atrophy of the penis is the natural consequence of castration. The penis becomes more deeply retracted into its protective fold, the sheath, and often remains within the preputial cavity during micturition. Accumulation and decomposition of the urine result in irritation and inflammation of the lining membrane of the sheath; eventually the glans becomes involved in the inflammatory process, and the above-referred-to state, balano-acrobustitis, exists.

Nevertheless, it occurs also in the stallion, where concretions and decomposing preputial smegma, the product of the numerous sebaceous preputial glands, of peculiar smell and dark gray in color, may represent the offending agent.

Acrobustitis following the "cleaning of the sheath," especially by attendants with long finger-nails or very broad hands, as also by the introduction of pepper, etc., during colics or imaginary renal troubles, is common.

While an acrobustitis in the gelding usually precedes balanitis, the reverse holds true in the stallion. With him balanitis follows the act of copulation, as through an improperly directed penis, undue friction in the vagina, its entrance into the rectum, etc. Finally, neoplasms may also give rise to this condition.

The first indication of the trouble is an œdematous swelling both within and without the prepuce, next colicky symptoms, the urine being discharged in drops or jerks, accompanied by groans. Palpation of the preputial cavity at this stage will reveal a painful and swollen state of the mucous membrane lining it, with the penis retracted as far as possible, the lining being covered with a black mass, while occasionally a more liquid purulent agent—an active competitor as regards odor to the decaying tooth—is encountered. Should the animal permit his penis to be drawn out, the swollen state of the glans, with its projecting, injected urethral opening, becomes apparent. Whenever this state, as just described, is allowed to go on without medical attention, ulceration and sloughing of the parts, and excessive granulations almost filling the preputial cavity, may follow.

On the whole but little trouble is experienced in effecting a cure. It is to be admitted that there is a tendency to chronicity, and in such cases where ulcerations are present in the preputial cavity decidedly active treatment becomes a leading feature. Balanitis and acrobustitis depending on new growths may resist all medication, amputation of the penis being a last resource.

Most cases will make a prompt recovery when thoroughly cleansed with warm soapsuds, adding about 5 per cent. soda carbonate, the latter addition helping to saponify the sebaceous matter. The whole cavity after having been thus cleansed is flushed with a 2 per cent. solution of germol or creolin, or, what has given me the best results, protargol 8 parts, water 92 parts. In those cases with a tendency toward infiltration, that is, whenever an active inflammation is present, slight vesication, followed with scarification of the sheath about four hours later, will give excellent results.

Excessive granulations have to be removed and the parts treated with absorbent and antiseptic applications, as irrigation with a 3 per cent. formalin solution or the above protargol solution, followed by some such powder as tannic acid 16 drachms, pulverized sugar 3 ounces, dusted upon the parts.

* * *

Dr. Fred. M. Hovey, of Marshall, Mich., reports a third outbreak of anthrax or braxy near that point. Microscopical examinations have been made, verifying the diagnosis.

THERAPEUTICAL AND PHARMACEUTICAL NOTES.

Under the Direction of W. J. Martin, M.D.C.,
KANKAKEE, ILL.

Zeroform in Neurectomy. During the past year we have used this drug quite extensively in the performance of the various forms of plantar neurectomies, and can confidently recommend its use to the members of the profession as a reliable antiseptic and germicide.

Zeroform is a yellow powder, containing 50 per cent. of oxide of bismuth in chemical combination with 50 per cent. of tribromophenol. It is nearly odorless, and is more economical to use in practice than iodoform, because in equal volume with iodoform its weight is about half that of the latter drug. Hence the price of zeroform at 60 cents per ounce is about as cheap as iodoform at 40 cents per ounce.

Our method of using zeroform in neurectomy is as follows: The patient is placed on an operating table, the limbs are thoroughly washed in a ½ per cent. solution of formalin, the hair over the seat of operation is removed by shaving with a razor, and the parts again well washed. A 10 per cent. solution of cocaine or beta-eucaine is then injected at the superior head of the metacarpal bone, and directly over the plantar nerve. We prefer this site for the injection because the field of operation is not obscured by the infiltration of the tissues with the fluid. We also found by experiment, that the anæsthetic action secured was as complete as when the injection is made directly over the site of operation. After the application of an Esmarch elastic bandage to the limb, the nerve is resected in the usual manner. After removal of the section of the nerve, the edges of the wound are brought into apposition with a fine formalized-catgut ligature. Any oozing of blood is soaked up with small pieces of absorbent cotton, the parts well covered with zeroform, the limb covered with a layer of absorbent cotton, and a wet formalized bandage applied over all. This dressing is not changed for five or six days, when the wounds will have united by first intention. Since employing zeroform in this operation, the results have been in every case most gratifying.

A PLASTER OF OXIDE OF ZINC. Unna suggests the following formula: Linseed-oil, 5 drachms; lime-water, 5 drachms; oxide of zinc, 1 ounce; prepared chalk, 1 ounce. This makes a paste, in which various other drugs may be employed for diseased conditions of the skin. The following substances, however, should not be mixed with it: Acetic acid, salicylic acid, pyrogallol, phenol, resorcin, or ichthyol. On the other hand, the following medicaments may be added to this paste for application in certain cases of skin-diseases with advantage: Corrosive sublimate up to the strength of 10 per cent.; chrysarobin, 10 per cent.; balsam of Peru, 10 per cent.; oil of cade, 5 per cent.; tar, 10 per cent.; extract of cannabis indica, 5 per cent.; extract of opium, 6 per cent.; menthol, 2 per cent.; oil of almonds, 10 per cent.; and cocaine, from ½ to 1 per cent.—*Therapeutic Gazette.*

The above paste will, without doubt, prove of value to the veterinarian in the treatment of many of the troublesome skin affections so often met with in practice, more especially those found on the legs of horses, such as eczema, erythema, etc.—*W. J. M.*

TREATMENT OF BASEDOW'S DISEASE BY THE MILK OF THYROIDECTOMIZED GOATS. Lanz records the results which he has obtained in the treatment of Basedow's disease with the milk of goats from which the thyroid gland had been removed.

The idea of the symptoms of Basedow's disease is that they are due to hypersecretion of the thyroid gland, and this may be to a certain extent modified if the thyroid gland is removed. It occurred to Lanz that as this latter operation could not be performed, it might be possible to influence the system of the patient by the use of milk derived from goats which had been deprived of this gland, at least in part.

The milk was administered to three cases. In the first the treatment was followed in fifteen days by a diminution of the frequency of the pulse, disappearance of the headache and insomnia, improvement of the appetite, and notably diminution in the size of the goitre. In the second patient, after a period of nine weeks, there was noticed a diminution in the frequency of the pulse, improvement in the appetite and sleep, diminution of the tremor, and a general systemic improvement. Trousseau's sign disappeared. In the third case, at the end of eight days, there was a diminution of the nervous excitation and exophthalmia.

These patients took from two to three glasses of milk per day.—*Ibid.*

TANNOFORM IN DIARRHŒA. M. Lemberger has recently shown (*Thierarztliches Centralblatt*) the effect of tannoform in obstinate cases of diarrhœa. In the first place he used it in the case of a heifer affected with an acute intestinal catarrh upon which ordinary astringent remedies had no effect. He gave it in doses of ten grammes in one litre of chamomile-tea three times a day. In five days the appetite had returned, and the animal was on the high road to recovery. Another case was treated in the same way with an equally satisfactory result. Lemberger is particularly emphatic in pointing out that though the amount of the drug used was considerable (ninety grammes in forty-eight hours), the gastric function was not in any way interfered with. This he believes to be explicable by the insolubility of tannoform in acid liquids. It is, therefore, only decomposed when it reaches the intestines, where tannin and formaldehyde are produced, and exert their astringent and antiseptic actions.—*Veterinary Journal.*

Aside from its virtues as an intestinal antiseptic, tannoform has of late been quite extensively used by dermatologists in the treatment of various skin diseases; and also in suppurating sores and ulcers. It is employed both in the form of a dusting powder and ointment, and is highly spoken of as an efficient agent in these affections.—*W. J. M.*

ACARUS-MANGE IN DOGS. Veterinary surgeon Paust recommends the following treatment as having been successful in a case of a terrier which had been declared incurable. Morning and evening vigorous scrubbing in warm water and a solution of green soap, then brushing and syringing with a solution of creolin, then syringing with and dipping the whole body for several minutes into a strong decoction of tobacco. After drying, the following ointment is used: Sulph. precipit., zinc sulph., each, 1 gramme; lard, 8 grammes.

Bedding to be renewed daily, fresh clean straw below and soft warm cloths on top. No harm need come to the person who performs this work. More than once I thought the dog was going to die through sheer weakness. Wine and beef-tea were forcibly administered to the animal, as all appetite had disappeared. After awhile the above treatment could be suspended every second day, and at the end of a little more than a week it was stopped, and the cure was complete. Dogs exhibit symptoms of great pain after rubbing with the ointment, and run about howling; a period of great weakness follows. Strict attention must be paid to the method of procedure, and no time or trouble ought to be spared if a cure is to be complete.—(*Berliner Thierarzt Woch.*) *Veterinary Journal.*

REPORTS OF CASES.

1. ACTINOMYCOSIS, AND 2, STRONGYLUS GIGAS IN DOGS.

By F. Torrance, D.V.S.,
WINNIPEG, CANADA.

1. Actinomycosis. A pure-bred and well-broken pointer was brought to me suffering from ascites. Examination of the heart and liver proved negative, but the urine was found to be albuminous. Medical treatment failed entirely to relieve the dropsy, and I had recourse to tapping, and removed in this way a large quantity of fluid. The abdomen very speedily filled up again and the operation had to be repeated frequently. The amount of fluid removed was often very great, and on one occasion measured 160 fluidounces. The dog had a good appetite all through his illness, but kept losing flesh continuously until he was reduced to skin and bone.

The owner now consented to his destruction, which was accomplished painlessly by the use of chloroform. The post-mortem examination followed immediately. On opening the abdomen a large quantity of clear fluid escaped. The peritoneum was healthy except for the presence of a few flakes of adherent lymph, but on the surface of the intestines the blood-vessels stood mapped out as distinctly as in an injected specimen. The liver was greatly engorged with blood, which flowed from it when incised like water from a sponge. The kidneys appeared healthy on section, but when examined microscopically one of them was found to be affected with interstitial nephritis.

In the thorax a large mass was seen occupying the region between heart and diaphragm, and involving the posterior part of the right lung, part of the pericardial sac, and the diaphragm. The mass was as large as a cricket-ball and quite solid. On section the cut surface had a marbled appearance and resembled carcinoma. Recognizing the rarity of a malignant tumor in such situation, I removed it *en masse* and sent it to Dr. Bell, the provincial bacteriologist, for his opinion. He reported finding actinomycetes in the growth, and was of the opinion that they were the cause of it. Other small nodules of the disease could be found in the lung, and it is probable that invasion took place through the respiratory tract.

Actinomycosis in the dog must be a rare disease, for there is no mention of it in such works as Friedburger and Fröhner's *Pathology*, nor have I ever seen it described in any veterinary journal. In this case it caused ascites by interfering mechanically with the return of blood from the abdomen through the vena cava.

2. STRONGYLUS GIGAS. A husky dog which had been bought from the Indians living upon the shores of Lake Winnipeg was brought to this city with others for shipment to the Yukon district, where dog teams are the chief mode of locomotion in the winter. While chained up with his comrades in a large loft he was found one morning lying almost dead in a pool of blood.

At first it was supposed that another dog had got loose and had bitten him, accidentally severing an artery. However, a careful examination failed to reveal any wound, but discovered the fact that the blood was escaping from the urethra. The dog died before any veterinary aid could be rendered, and a post-mortem examination was made at once.

On opening the abdomen the organs appeared healthy, with the exception of the bladder, which contained blood, and the right kidney. The capsule of this kidney was of a livid color, and the outline of the organ was irregular. On cutting into it there was hardly any kidney tissue, nothing but a thin layer next the capsule. All the rest of the organ was converted into a large sac, in which was snugly coiled up an enormous worm as thick as a lead-pencil. When straightened out the parasite measured eighteen inches, and, no doubt, while making his breakfast on kidney, had bitten through the renal artery, causing the death of his host and his own transfer to a specimen-bottle.

This case may throw some light upon the source from which this parasite is derived. It has been suggested that perhaps this is also a parasite of fish, and in support of this view is the fact that the Indian dogs in the vicinity of the big lakes are usually fed on fish, which are thrown to them whole and uncooked.

STRONGYLUS CONTORTUS IN A HERD OF ANGORA GOATS.

By H. E. Titus, D.V.M.,
MAXWELL, IOWA.

In reporting this case it is not with the idea that it is a rare one, but simply my first experience in dealing with the *strongylus contortus* in the Angora goat.

This herd, some two hundred in number, ranged in age from one to five years, the yearlings coming from Kansas, and the older ones from Texas. I was called first on December 11th to account for three deaths which had occurred some days prior to that time. On visiting the herd I found two yearlings sick and unable to stand, and perhaps a dozen yearlings moping around, some few of them showing a slight diarrhœa.

It was deemed advisable to destroy and post-mortem one of the worst cases. The post-mortem revealed the presence of the small thread-like parasite, apparently making up the greater portion of the contents of the fourth stomach.

I at once began preparation for treating the entire herd. This consisted of drenching each individual one by one with two to four ounces of an emulsion of oil of turpentine and milk, one pail of turpentine to sixteen of the milk. This treatment was repeated at intervals of four days until four doses had been administered. Those showing intestinal disturbances, but yet able to be on their feet, were treated by the following prescription: Nucis vomica., ℥ij; gentian pulv., ℥vj; sodii bicarb, ℥iv; misc. This to be divided into forty-two powders, and one-half powder administered with gruel twice per day to each animal.

There has been but one death since treatment began, and the remainder of the herd is gradually improving in general appearance.

Pennsylvania and Maryland State Veterinary Examining Boards conducted examinations in June at Philadelphia and Baltimore.

CORRESPONDENCE.

GRAND RAPIDS, MICHIGAN, April 2, 1900.

EDITOR JOURNAL OF COMPARATIVE MEDICINE, ETC.

DEAR SIR AND EDITOR: As Mr. Jopling, who holds a certificate from the Ontario Veterinary School, and not unlike many others of his kind in Michigan, who are blessed with those foreign certificates, follows another vocation for a livelihood, has been elected President of the Michigan Veterinary Medical Association, in which official capacity he has seen fit to attack the Grand Rapids Veterinary College and its Dean, we trust that you will accord us space in the JOURNAL for a reply to his unique effusion.

Mr. Jopling (we use the term Mr. because the Ontario Veterinary School never was, and perhaps never will be, clothed with authority to confer the degree of Doctor upon any man) says that one of the many pitfalls that has confronted their committee on legislation is a certain garrulous individual hailing from Grand Rapids, etc.

Now, let us dissect this liveryman's assertion. The records of the House of Representatives of Michigan are proof of the following statements: That on February 16, 1893, a bill was introduced by the Hon. A. S. White, of our city, for the regulation of the practice of veterinary medicine. This bill was drafted by the undersigned, who is now the Dean of the Grand Rapids Veterinary College. A few days later a bill was introduced by the Hon. Mr. Hammond, who represented the Michigan State Veterinary Medical Association. The Hammond bill was framed with an eye single to the glory of the Ontario Veterinary School, consequently it met with opposition. The Association's committee, of which the Hon. W. W. Thorburn, was chairman, invited us to meet with them in Lansing; at this meeting a truce was patched up by amending the Hammond bill, which was to be pushed by petitions, and the White bill was dropped. Returning home we circulated petitions in several counties, and alone secured more signers than did all the members of the Association combined—as to the truth of this W. W. Thorburn, then chairman of the committee, can testify. The Hammond bill was placed in the hands of an attorney, employed by the Association as lobbyist, and has never been heard from since. Therefore we ask, who was responsible for its downfall?

During the year 1895 the Association could not agree on any one measure, and while they were engaged in a war of words we made a second attempt to better the standing of our profession. Singling out Representative Chilver as our Moses, April 5, 1895, he introduced House Bill No. 500. At this time we again expended more than a hundred dollars travelling about the State soliciting aid in support of the measure. This bill passed the House with but one immaterial change, and it was the first veterinary bill that ever did pass the House.

It went to the Senate where it was met by the Association in the person of Dr. E. A. A. Grange, then State Veterinarian, and by the efforts of the Association through Grange the bill was tabled only a day or two before the final adjournment of the Senate.

Again we ask, who was responsible for its downfall?

During the year 1897 the Association was still sparring; the Americans arrayed on the one side and the foreign element on the other.

February 15, 1899, House Bill No. 18 was introduced by the Association. This bill passed the House before we saw it and went to the Senate. The Hon. R. T. Graham sent us a copy, on receipt of which we telegraphed the Senate to hold the bill until we could be heard; this request was granted.

We saw at a glance that the bill would legislate out of practice scores of competent veterinarians, who had fully complied with all the requirements of some of the leading veterinary colleges of the United States at the time they obtained their degree, and who have been active and reputable practitioners for many years.

The ring-leaders of the Association had displayed about as much sense as did the man who contracted to scuttle a ship in mid-ocean. The bill possessed but little merit, as it did not prevent unqualified persons from practising veterinary medicine; applying only to the professional title. We modestly, yet firmly insist that it was inferior to the bill prepared by competent attorneys at our request, and introduced by Representative Anderson, of our city, a copy of which is in your possession; we further state that any one of the foregoing measures has more merit than does the one that has become a law, gladly making you judge of them.

Notwithstanding all this we bent our efforts to have the association bill amended for its betterment, and believe that in the opinion of every veterinarian in the State, except the "foreign element," we succeeded. But the "foreign element" is disgruntled; first, because they find that "there are others" as our noble Governor Pingree told them, and second, because he (Governor Pingree) refused to be hoodwinked into appointing their slate to positions on the State Veterinary Board of Examiners, which Board they had hoped to control in the interest of the Ontario Veterinary School; hence the cries of "Quack," the "Grand Rapids Mill," etc.

Now, Mr. Editor, let us quote Webster's definition of "Quack," and if we come within his definition we shall cheerfully adopt that cognomen. Webster: "A quack is a boastful pretender to medical skill, hence one who boastfully pretends to knowledge not possessed; an ignorant, pretentious practitioner in any branch of knowledge."

With this as a definition we brand Mr. Jopling a malicious falsifier, as we never boasted of knowledge not possessed, and we will put up five hundred dollars against a like sum that we can to-day, or any day, pass an examination at a higher percentage in all branches of veterinary science, including clinical surgery, before the State Board of Examiners than can Mr. Jopling, President of the M. S. V. M. A. We will include in this challenge any member of their Association.

Now, Jopling, come up and take this examination. You can do it in one day, and five hundred dollars is more money than you can make in the livery business in six months.

"The Grand Rapids Mill." While we are ready to brand any man a liar that applies to our college this title, yet from a financial point of view it might be well to get a little advertisement in this line. We have heard no other name for the Ontario Veterinary School since we can remember; nevertheless there were one hundred and forty students at the Ontario Veterinary School during the last session. It appears that there are a whole lot of people that want a diploma, even though they do, like some of the officials of the M. S. V. M. A., come within Webster's definition of a "Quack" after they get it. However, that your readers may know the relation between our College and the State officials, we beg to append two clippings from the Lansing *Republican* and one from the Detroit *Free Press.*

> The *Secretary of the State Board of Veterinary Examiners* called on Attorney-General Oren yesterday and sought to have that official institute proceedings to put the Grand Rapids Veterinary College out of business. He was advised that his showing did not warrant any such action.
>
> REPORT UNFOUNDED.—*Dr. W. W. Thorburn, Secretary of the State Board of Veterinary Examiners,* stated to-day that the report that the State Board was trying to put the Grand Rapids Veterinary College out of business was a misrepresentation of the views of the Board, given to the press by an outside party. The Board is not opposed to any college which comes up to the requirements of the law.—*Lansing Republican.*
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> OBJECTIONS HAVE BEEN REMOVED.—W. A. Giffen, of Detroit, Secretary of the State Veterinary Medical Association, has been here consulting with the attorney-general in regard to the Grand Rapids Veterinary College, the graduates of which, it is claimed, are not entitled to practise their profession under the new veterinary registration law. Mr. Giffen is understood to have obtained but little satisfaction, as the college in question has been examined by State authorities, whose objections to its methods have been removed.—*Detroit Free Press,* March 27.

Now, Mr. Editor, it will be seen by comparing the bills that the words "Citizens of the United States" have been inserted; also, the words in Sec. 3, line 1, "Not an alien." This was done at our suggestion, as we do not believe this State should, by legislation, favor the foreign element or foreign institutions by the enactment of un-American laws.

This was another severe blow to the "foreign element," and one that is being resented in a mean, underhanded way, and as we were directly responsible for those changes their vengeance is being wreaked on the Grand Rapids College.

Again, Mr. Editor, as to the length of our College course. We have consulted members of the State Veterinary Board and we are informed that some of the Board are opposed to the recognition of diplomas from any foreign school. Were we certain that the Board would adopt this policy we would extend our curriculum at once to three years, but inasmuch as the "foreign element" are active in their endeavor to change the complexion of the Board we cannot decide upon a change now.

In future, please do not trouble yourself about endowments or State assistance for our College, as the proceeds from our hospital and veterinary practice, aside from the College, are sufficient to meet all running expenses, and believing that education of every kind should be placed within the reach of as many as possible, we are seriously thinking of reducing the College fees to fifty dollars, including laboratory and anatomical fees. Yours, with personal regards,

LEONARD L. CONKEY, Dean,
Grand Rapids Veterinary College.

EDITORIALS.

A. V. M. A. AT DETROIT.

IN this issue will be found a full outline of the programme at Detroit. Secretary Stewart has been assiduous in his work, and has secured many promised contributions on a variety of subjects that will attract the keenest attention of the profession all over the land.

The present year has been a very favorable one in veterinary circles, and the attendance should be larger than for many years. There should be many new faces at Detroit from a section of the United States and Canada that has not been well enough represented in Association circles in past years. While the Northwest may regret that she was not favored with the meeting, still there will be few of her devoted Association members absent at Detroit. From Ohio and Indiana there should be an increased interest and attendance, and there will be on the programme more than ample to repay the remotest veterinarian in our land for every sacrifice made in attending the 1900 convention. Let there be but few stay-at-homes. Let there be many applicants knocking for admission.

WHERE IN 1901?

THE East has had many meetings of the A. V. M. A. The Central West, the Northwest, the region beyond the Mississippi, and the South have all felt the valued impulse of Association conventions in their midst, and there remains but one section of our territory that needs and yearns for our presence, and which should have our most serious consideration. We refer to the Pacific coast. And why not cross the continent in 1901? With this attained we could surely claim beyond any question the name of A. V. M. A., and in strengthening our colleagues' hands in that great and wonderful section of our country we would likewise strengthen our own. Will the Pacific slope veterinarians lead in the movement?

MICHIGAN AS A RECRUITING FIELD.

Upon another page of this issue we publish a series of comments and doings in Michigan. They will not fill the minds of those who so strongly advocated the "City of Straits" as the meeting place for 1900 with the same degrees of pleasure and delight that perhaps they had anticipated; but it surely will prove an incentive and stimulus to every member of the American Veterinary Medical Association to put forth renewed efforts in doing missionary work in this field of discord, strife, and personal animosities. The parent organization of our land has solved many trying problems in the past; spread its wings of peace over many discordant periods, and added strength and power and unity of purpose in many fields where these elements of strength were wanting. Such will be its mission in Michigan, and when it has achieved these much-to-be-desired results it may also hope that this field for future recruits may add to the schools that equip her graduates with strength and support to so qualify their graduates that they may become eligible as applicants for membership in the American Veterinary Medical Association.

FRENCH VETERINARY CONGRESS OF 1900.

A large number of subscriptions from individuals and societies have been received, and the success of the Congress is assured. All expecting to attend the Congress are requested to send notice as soon as possible, at least one month in advance of the meeting. This information is desired in order that the committee may know how many preliminary programmes to send out, and that they may give to the railroads a complete list with the demand for reduced rates in fare. The State has given 2000 francs for the meeting, and different societies have subscribed 1305 francs. Some 340 French veterinarians have joined, and 46 foreign up to June 20th. The foreign delegates are from Germany, Belgium, Cuba, Egypt, Denmark, Spain, United States, Hungary, Italy, Luxemburg, Portugal, Argentine Republic, Switzerland, and Uraguay. The United States has only one delegate, Dr. A. Liautard, of New York.

ARMY legislation will be a topic of earnest consideration at Detroit. The failure of our bill in the House at Washington will be a source of discussion, and led by that foremost advocate of army recognition of rank, Dr. Rush S. Huidekoper, it is sure to lead up to the final achievement of this much-to-be-desired end. The next Congress will determine beyond peradventure this long-considered question, and how we can work most effectively in securing favorable consideration will be the topic presented by that able leader in this work, through whose directing efforts our bill passed the last Senate in a battle on the floor of that august body.

ON another page in this issue will be found a news note of the work of State Veterinarian Pearson in Pennsylvania in again securing for veterinary sanitary control work for the ensuing year some forty thousand dollars. This alone speaks volumes for the success attained in the Keystone State along these lines of work. While almost every other department of the State has been the target of attack by the public press, and gross charges of incompetency, dishonesty, and fraud been openly made, the work of this branch of the Department of Agriculture has gone steadily along with almost the united support of the press, the granges, the breeders' organizations, and the people at large—a just and well-deserved tribute to the efficient work done by the Live-stock Sanitary Board under the wise and conservative direction of Dr. Pearson.

In this work Dr. Pearson has had the assistance of more than one hundred veterinarians throughout the State, and so well has the work of this large number been directed and regulated that only the most commendable expressions of satisfaction have been heard from every section of our State. What has been done well in Pennsylvania can be equally well accomplished in other States.

THE Pennsylvania State Live-stock Sanitary Board held a meeting at Harrisburg, in the office of the Governor, on July 6th. John Hamilton, Secretary of Agriculture, was elected treasurer of the Board, and Jesse K. Cope, Dairy and Food Commissioner, was elected Vice-President. Governor Stone and State Veterinarian Pearson continue as President and Secretary, respectively. The work of the year terminating May 31st was gone over in detail, and it was shown that tuberculosis is being repressed at a very encouraging rate, and that the live-stock owners throughout the State are working in thorough sympathy and accord with the Board.

It was arranged that hereafter cattle brought into the State and found upon test to be tuberculous should be returned to the State whence they came only when special authority for such return shipment is granted by the State Veterinarian.

It was arranged to devote $40,000 to field work—to the practical work of suppressing disease—during the year beginning June 1, 1900, and terminating May 31, 1901.

DR. MAZYCK P. RAVENEL, Bacteriologist of the State Live-stock Sanitary Board of Pennsylvania, and D. J. McCarthy, M.D., would be glad to have material sent them for examination, and want especially diseases simulating hydrophobia, and nervous diseases of all kinds, in order to prove whether or not these changes are found only in rabies. They request that the head shall be cut off about the middle of the neck and packed in ice, or else put in 10 per cent. formalin solution, and forwarded to Dr. Leonard Pearson, 3608 Pine Street, Philadelphia. They request that in no case should the suspected animal be destroyed by chloroform, owing to the production of changes in the nervous system which would confuse the findings of such an examination.

MARRIAGE.

AT Woodstown, N. J., June 20th, Dr. Lewis D. Horner to Miss Rachel Lippincott Moore. Dr. Horner graduated at the Veterinary Department, University of Pennsylvania, class of 1898.

NECROLOGY.

Charles A. Mackey, V.S., of New York City, died at his residence in April. The deceased was a graduate of the New York College of Veterinary Surgeons, class of 1889.

After a long and painful illness, the wife of Dr. William Jopling, of Owosso, Mich., passed peacefully away in March last.

Dr. Jopling's work as President of the State Association is well known, though for more than a year restricted by the exactions of the continued illness of his wife.

COMMENCEMENT EXERCISES.

UNIVERSITY OF PENNSYLVANIA, VETERINARY DEPARTMENT.

THE commencement exercises of this department were held in conjunction with the other departments of the University at the American Academy of Music, Philadelphia, June 13, 1900, at 11 A. M. The graduating classes, members of faculties, trustees, guests of the corporation, honorary chaplain, orator of the day, the vice-provost, and provost marching in a procession to the academy. The exercises consisted of invocation by Rt. Rev. Ozi W. Whitaker; hymn, "Our Father in Heaven," this being followed by the commencement address by Wm. L. Prather, Esq., president of the University of Texas; singing, "Hail, Pennsylvania," followed by conferring of honorary degrees. The exercises closed by singing of the National anthem, "America," followed by benediction.

The degree of V.M.D. was conferred upon the following: Wm. Russell Andress, Philadelphia, Pa.; Ernest L. Cornman, Gladwyne, Pa.; Richard Y. Davison, Morton, Pa.; Glen W. Horner, Finksburg, Md.; Wm. Hughes, Harrisburg, Pa.; Henry N. Mayer, Pittsburg, Pa.; L. A. Nolan, Baltimore, Md.; Edgar W. Powell, Newtown Square, Pa.; B. H. Tallman, Farragut, Pa.; Thomas White, Philadelphia, Pa.; Hulbert Young, Washington, D. C.

A meeting of the Alumni Association was held in the evening at Houston Hall. Among those present were to be noted, from the older classes, alumnæ Leonard Pearson, dean; W. H. Ridge, M. E. Conard, F. H. Mackie, James Beatty, A. N. Lushington, George O. Forsythe, J. M. Mecray, who acted as toastmaster, John W. Adams, C. J. Marshall, H. D. Martien, L. A. Klein, J. D. Fitzpatrick, and the entire graduating class of 1900. The invited guests of the evening were Professor R. S. Huidekoper, founder of the veterinary department, and Dr. W. Horace Hoskins, editor of the JOURNAL.

Among the toasts responded to were those of the "History of Veterinary Medicine," by Professor R. S. Huidekoper, who, tracing the steps of advancement in America, pointedly referred to the rapid strides of progress from the inception of the first school in Boston, to those of to-day with their extended graded courses; this was followed by remarks on similar lines by Editor Hoskins, who cited many of the trying experiences of the pioneers in veterinary educational undertakings.

Dean Pearson, of the department of veterinary medicine, painted a glowing picture of the future of the veterinarian and the many avenues of employment opening up that demanded his services.

"Horse-show Troubles" were fully described and illustrated by exciting experiences related by Dr. W. H. Ridge, who had recently filled this unenviable rôle at the Philadelphia horse-show.

Dr. J. W. Adams, in treating of "Veterinary Medicine *versus* Human Medicine," strongly outlined the value of a course in veterinary medicine to those about to engage in human practice, and said he thought that there was little to be gained by the veterinarian in a human medicine course.

Dr. L. A. Nolan, of the graduating class, gave a succinct history of the many varied qualities possessed by the members of the class, and pointed out the great future for his classmates in the many directions where they seemed to excel. To one he pointed the way to success among the ladies and their feline and canine pets. To another this field was closed, as his successful operations among the lower animals too frequently found his patients dead. Another as a breeder, others in official places, assistant editors, until everyone felt that the profession was in safe hands in all directions for many years when handed over to the class of 1900.

Other responses were made, and with the splendid *menu* prepared it proved a very enjoyable occasion.

The election of officers for the ensuing year resulted in the selection of Dr. C. J. Marshall, president; E. M. Ranck, vice-president; J. D. Houldsworth, secretary-treasurer.

NEW YORK-AMERICAN VETERINARY COLLEGE (VETERINARY DEPARTMENT OF THE NEW YORK STATE UNIVERSITY).

THE closing exercises of this institution at the Metropolitan Opera House, in New York City, took place on the evening of June 7, 1900. The week of festivities of the University preceded the closing exercises, and as the first graduates of this new college there was accorded a most generous welcome to the ranks and the most cordial interest shown by the University in her first born from this added department to her other successful schools.

The graduates were as follows: Charles Edward Clifford Atkins, Bridgeport, Conn.; Joseph L. Drexler, Thibodaux, La.; Adolph Eickhorn, J. William Fink, and Daniel Joseph Manjan, New York City, N. Y.; James Edward Norton, Glen Cove, L. I.; James Henry Prophett, Suffield, Conn., and William Arthur Young, Utica, N. Y.

The alumni meeting of the College was held in the College building at 141 West Fifty-fourth street, at 3.30 P. M., President Wm. H. Pendry in the chair. The executive committee reported that the usual alumni prize had been provided, the banquet arranged for, the completion of the work incidental to the presentation of the loving cup to Dean Liautard, and a balance of nearly ninety dollars of the fund subscribed. This sum will be used to prepare a suitable tablet or token to be placed in the College building, commemorative of the silver anniversary of the College.

A unanimous spirit prevailed among those present to join with and sustain in every way the work of the old College as a department of the University and to promote its welfare in all directions. The newly elected officers were urged to continue the work of more completely uniting the graduates of the old institution in effective work for the new department.

Dr. Robert Ellis, one of the ever-faithful alumni, was selected as president of the association for the ensuing year, and his identity with the College as an instructor, his keen interest in the University specially equips him to carry into effect the rapidly developing spirit. He will be ably assisted by Drs. W. H. Lowe and H. D. Hanson, who were chosen vice-presidents of the association. In the re-election of Dr. F. R. Hanson as treasurer there was added the duties of secretary also, which will make this dual position one of much greater work and importance during the year.

Dr. Adolph Eickhorn, of the graduating class, will fill the rôle of librarian.

A strong effort and an appreciative desire were shown to retain the efficient services of Dr. C. E. Clayton as secretary, but his declination was positive.

President Ellis will name later the executive committee for the ensuing year.

The banquet of the association at the Hotel Marlborough at 10.30 P. M. following the commencement exercises was a very pleasant and enjoyable affair. Chancellor McCracken and Dr. Munn, of the University council, were the invited guests, and the earnest words of cheer and interest displayed in the remarks of the chancellor and the more than parental care for the future of the veterinary department were listened to with much pleasure by those present. Dr. Munn, of the council, whose long-continued interest in the field of comparative medicine was well exhibited in his remarks, which showed an appreciative watchfulness over the broader development of the veterinary field.

NEW YORK STATE VETERINARY COLLEGE, CORNELL UNIVERSITY.

At the annual commencement exercises held at Ithaca, N. Y., June 21st, the degree of D.V.M. was conferred on the following: Clarence Lyon Barnes, Lockport, N. Y.; John W. Corrigan, Owego, N. Y.; Grant Sherman Hopkins, Westport, N. Y.; Charles H. Jewell, Staterville Springs, N. Y.; Louis Greene Juliand, New York; William J. Mitchell, Ithaca, N. Y.; Garry T. Stone, Binghamton, N. Y.

The Horace K. White prizes of $15 and $10 to the most meritorious students in the graduating class were awarded to Clarence L. Barnes and Garry T. Stone.

The theses submitted by the candidates for graduation were all founded on original work on the subjects selected, as follows:

C. L. Barnes, Laryngeal Hemiplegia and Roaring; J. W. Corrigan, Melanosis and Melanoma; G. S. Hopkins, the Brachial Plexus in Monodactyle and Polydactyle; C. H. Jewell, Ovariotomy in Domestic Animals; L. Juliand, Aloin as a Purgative; W. J. Mitchell, Bacteria in the Female Generative Organs; Garry T. Stone, Tuberculin and Its Uses in Diagnosis.

UNITED STATES COLLEGE OF VETERINARY SURGEONS.

The sixth annual commencement of this college was held in the college lecture-room, April 12, 1900. Despite the threatening weather the hall, which had been tastily decorated with bunting and flags, was comfortably filled by the friends and relatives of the graduates. The students were conspicuous, as they all wore the college colors, and the graduating class occupied a prominent place near the platform.

The exercises were opened by the Dean, C. Barnwell Robinson, with a few brief introductory remarks. Among other matters some personal reminiscences of his early experience as a veterinarian elicited close attention. He reminded the students that, though they had successfully passed the examinations and their school days had closed, yet their need for books, study, and investigation would never end. The world cared little for their diplomas; few, indeed, would ever inquire if they had one, and perhaps no one would ever read them. Their standing in the profession would depend upon the character of their work. The world will not ask, "Who are you?" but "What can you do?"

Dr. J. P. Turner, professor of zoötechnics, milk- and meat-inspection, was then introduced. His appearance upon the platform was the occasion of an outburst of applause. He at once engaged and maintained the closest attention on the part of the audience. His address was of an eminently practical nature. The great need of moral stamina on the part of the young practitioner was forcibly dwelt upon; he must elevate the profession by elevating himself. The course of the graduate who hung out his shingle at a disreputable livery stable and condemned himself to a low and ignorant class of associates was severely criticised. Instances were cited of bright, clever, and capable young men who, from lack of moral force and courage, were driven from the field of veterinary science. Humanity, moral principle, and love of the profession should be the golden rule of their professional as well as private lives.

G. A. Prevost, LL.B., professor of jurisprudence, was then introduced. In the course of his remarks some good fatherly advice was given. The early history of the school was outlined; its struggles briefly recapitulated and commented upon, and, as the graduates were feelingly admonished to walk in the straight and narrow path, thereby maintaining and upholding the honor of their Alma Mater, the diplomas were handed them. The graduates were Wm. J. Guilfoil, Auburn, N. Y.; H. K. Kauffman, Hegins, Pa.; F. B. Berger, Baltimore, Md., and Frank Feagans, Wardensville, W. Va.

"Judge" Feagans delivered the valedictory address. In his paper, which showed careful preparation and deep thought, the development of veterinary science was reviewed; the advances made in the treatment of the sick and wounded, the growth of sanitary medicine, and the evolution of humanitarian ideas were noted. The great impetus given to the study and diagnosis of disease by the wonderful achievements of bacteriology were fittingly dwelt upon.

In taking leave of his class associates and the Faculty, Dr. Feagans touchingly alluded to the many courtesies extended by the Faculty. "Ere yet again rosy-fingered Aurora, goddess of morn, has gilded the lofty domes of this beautiful city, many of the faces before me will be gone. Succeeding years may witness many assemblages around this platform; many speeches will go echoing down the halls of this historic structure, but no assemblage, however brilliant, no speech, however witty, can efface from memory the valuable lessons we have learned or the noble impulses which have inspired us while here."

In responding to the valedictory address, Dr. H. W. Acheson, professor of obstetrics and cattle pathology, soon had the audience roaring with laughter at his unconscious (?) wit and brilliant repartee. His remarks were replete with valuable suggestions, and the fear of all who heard him was lest he should make an end of speaking.

At the conclusion of Dr. Acheson's remarks each graduate was presented, on behalf of the Faculty, with a large bouquet of rare and fragrant flowers from the conservatory of one of Washington's distinguished florists. Mention should also be made of the picture, grouping the entire school and Faculty, presented the Dean by the students.

The degree conferred upon the graduates is that of Doctor of Veterinary Science and Membership in the United States College of Veterinary Surgeons.

(Reported by Jas. R. Covert, an undergraduate.)

There is too much effort on the part of schools to give an extended education in the branches of practical medicine and surgery to minds that are imperfectly prepared to accept the same through lack of essential fundamental branches. Veterinary colleges should look to their own standing and reputations in this direction.

SOCIETY PROCEEDINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

DETROIT, MICHIGAN, SEPTEMBER 4, 5, 6, 1900.

THE details of the coming meeting of the Association are about completed, and it would seem that nothing was lacking to make this the banner meeting of the Association. The local Committee of Arrangements has made excellent and complete preparations to receive the veterinarians of the country and treat them most royally. And it is expected that the ladies will accompany the veterinarians, for special arrangements have been made for their entertainment.

Headquarters. **The headquarters of the Association will be at the Russell House, corner of Woodward avenue and Cadillac Square. There are numerous hotels in the immediate vicinity of the Russell House, and the tastes of the guests may be easily suited in style and price. If members and visitors will communicate with Dr. S. Brenton, chairman of the local Committee of Arrangements, 121 W. Alexandrine avenue, Detroit, Mich., stating full particulars as to the accommodations they may wish all arrangements will be made in advance.**

Place of Meeting. **The sessions of the Association will be held in the large convention hall of the Russell House, corner of Woodward avenue and Cadillac Square.**

Special meetings of the Finance Committee, Publication Committee, and Executive Committee will be held at the Russell House on Monday afternoon, September 3. The regular session of the Associaton will convene at 9 A.M., Tuesday, September 4. The Mayor, Hon. William C. Maybury, will deliver the address of welcome, the response to be made by Dr. W. Horace Hoskins.

The literary programme will include the following papers: "Labor, Rest and Confinement," by Dr. W. L. Williams, Ithaca, N. Y. "Relation of Veterinary Medicine to the Public Health," by Dr. Wm. Herbert Lowe, Paterson, N. J. "Psoroptes Communis, Equi and Bovis, in Montana and Northwest Territory," by Dr. M. E. Knowles, Helena, Mont. "Remote Effects of Drugs," by Dr. L. A. Merrillat, Chicago, Ill. "Examining and Licensing of Stallions for Stud Purposes," by Dr. J. I. Gibson, Denison, Iowa. "The Relation of Lymphatics to Meat Inspection," by Dr. Tait Butler, Indianapolis, Ind. "Notes on the Tuberculin Test in Wisconsin," by Dr. G. Ed. Leech, Milwaukee, Wis. "Antiseptic Therapeutics, by Dr. J. F. Winchester, Lawrence, Mass. "Rabies," by Dr. D. S. White, Columbus, Ohio. "Urinalysis in Veterinary Practice," by Dr. Pierre A. Fish, Ithaca, N. Y. "Veterinary Progress in Michigan," by Dr. William Jopling, Owosso, Mich. "Spavin, Its Etiology and Treatment," by Dr. W. J .Martin, Kankakee, Ill. "Inoculation Against Texas Fever," by J. W. Connoway, Columbia, Mo. "Snakes, Venoms and Antidotes," by Dr. E. M. Ranck, Philadelphia, Pa. "Obstacles to Enforcing Regulations Requiring Tuberculin Test in Interstate Cattle Traffic," by Dr. Austin Peters, Boston, Mass. "Practical Antiseptics," by Dr. G. A. Johnson, Sioux City, Iowa. "Control of Cattle Ticks," by Dr. Cooper Curtice, Raleigh, N. C. "Difficulties in the way of Municipal Meat Inspection in the South," by Dr. C. A. Cary, Auburn, Ala. "Experimental Tuberculosis, Human and Bovine, in Domestic Animals," by Dr. R. R. Dinwiddie, Fayetteville, Ark.

A series of surgical clinics will be held on Wednesday, Thursday, and Friday mornings at the Detroit Veterinary Sanitarium, rear 121 W. Alexandrine avenue. The clinics will begin promptly at 8 o'clock and continue two hours. A number of well-known surgeons expect to be present and demonstrate one or more operations each. The list of clinicians include: Dr. L. A. Merrillat, of the McKillip Veterinary College; Dr. W. L. La Baw, of the Veterinary Department of Harvard University; Dr. W. L. Williams of the New York State Veterinary College; Dr. A. H. Baker, of the Chicago Veterinary College; Dr. J. W. Adams, of the Veterinary Department of the University of Pennsylvania; Dr. H. D. Gill, of the New York-American Veterinary College; Dr. R. C. Moore, of the Kansas City Veterinary College. A large variety of cases requiring surgical interference will be provided by local veterinarians, the kinds of cases which practitioners are often called upon to treat, and which frequently prove troublesome, such as fibroma of the elbow, tumors of head and face, roaring, crooked tail, lameness due to diseases of the extremities, etc.

The following special operations have been promised: Ridgling castration under antiseptic precautions, with expectation of healing without suppuration, by Dr. W. L. Williams. Arytenoideraphy for cure of roaring, by Dr. L. A. Merrillat. Operation for tumor of elbow (shoe-boil), by Dr. W. L. La Baw. Immediate and permanent closure of alveolar opening into maxillary sinus following removal of tooth, by Dr. R. C. Moore.

PROGRAMME OF ENTERTAINMENT.

Tuesday, September 4, 1900. Morning: Visit to Convention Hall to witness the opening exercises. Afternoon: Trolley ride to Palmer Park and visit to ex-Senator Palmer's celebrated log cabin.

Wednesday, September 5, 1900. Morning: Visit to the Detroit Museum. Afternoon: Ladies will be entertained at luncheon by Mrs. S. Brenton, at her residence, 121 W. Alexandrine avenue.

Thursday, September 6, 1900. Morning: Carriage ride about the city, visiting Belle Isle Park and Waterworks Park. Evening: Theatre party.

Friday, September 7, 1900: Visit to Parke, Davis & Co.'s Laboratory, where a light luncheon will be served; from there the trolley or boat will be taken to the Ste. Claire Flats, where a fish and frog supper will be tendered all the visitors by the local association.

The railroads have granted the usual excursion rate of full fare for the going trip and one-third fare for the return, on the certificate plan. This rate ought to insure a large attendance from the large area of which Detroit is the centre. Eastern veterinarians who have enjoyed a most wonderful increase in practice, and are wondering how they can leave their business, should remember it will be profitable to themselves and their patrons to gather with veterinarians from all parts of America to compare notes and learn from each others' experiences.

Veterinarians living in the vicinity of New York City, Philadelphia, Baltimore, and Washington can reach Detroit as quickly and as cheap as those living in the Missouri River Valley, and they should not hold it as too far for them to go to this meeting of the A. V. M. A.

S. STEWART,
Secretary.

MISSOURI VALLEY VETERINARY ASSOCIATION.

The twenty-fourth regular meeting of the Missouri Valley Veterinary Association convened at the Y. M. C. A. building, St. Joseph, Mo., on June 25, 1900; regular officers, Dr. John Forbes, President, and Dr. John B. Wright, Secretary, in their respective places, and with the following members, visiting veterinarians and others present: Dr. R. C. Moore, Dr. S. Stewart, Dr. Charles A. Monney, Dr. H. C. Babcock and Dr. J. W. Parker, of Kansas City; Dr. H. V. Goode, Dr. E. J. Netherton, Dr. H. J. Washburn, Dr. J. A. Sloan, Dr. J. E. Blackwell, Dr. Charles E. Steel, Dr. Ripley and Dr. Lockwood, of St. Joseph, Mo.; Dr. G. R. Conrad, of Sabetha, Kans., Dr. John Ernst, of Leavenworth, Kan., and Dr. L. D. Brown, of Hamilton, Mo.

During the afternoon an interesting surgical clinic had been held at Dr. E. J. Netherton's Veterinary Hospital, Drs. Steel and Netherton performing a variety of operations in a creditable manner.

The Board of Censors reported favorably on applications by Dr. Charles E. Steel and Dr. Joseph W. Parker for membership, and they were accordingly elected active members.

The following officers were chosen for the ensuing year: Dr. John Forbes, re-elected President; Dr. L. D. Brown, First Vice-President; Dr. John Ernst, Second Vice-President; Dr. J. W. Parker, Secretary and Treasurer; Dr. J. A. Sloan, Dr. E. J. Netherton, Dr. C. E. Steel, Dr. J. B. Wright and Dr. R. G. Conrad, Board of Censors.

The retiring Secretary-Treasurer, Dr. J. B. Wright, submitted a report of the business and condition of the Association. The report shows regular meetings well attended, valuable papers contributed, and that the Association is in a thriving condition.

The literary programme of the evening was as follows: A paper on "Education of Lawmakers," by Dr. J. W. Parker, being a plea for united action in the present campaign and with the legislative bodies of Missouri, Iowa and Kansas, for adequate veterinary laws. The discussion was led by Dr. S. Stewart, who ably supplemented the thoughts advanced by the essayist. General discussion participated in by nearly all present, and at the close of the discussion Dr. E. J. Netherton offered a motion that the President appoint a committee of five to co-operate with like committees of the Veterinary Associations of Missouri, Iowa and Kansas, with a view of securing better veterinary legislation. Being duly seconded, it was so voted unanimously. The President appointed Drs. Stewart, Parker, Netherton, Moore and Goode.

Dr. J. A. Sloan presented a well-prepared paper on "Healing of External Wounds," dealing especially with the processes involved. Discussion led by Dr. H. J. Washburn and participated in by Drs. Moore, Stewart, Steel, Netherton, Parker and Lockwood.

Dr. R. C. Moore read an instructive paper on "Defective Eyelids," restricting it to congenital malformations. The discussion, which was led by Dr. C. E. Steel, brought out many interesting and instructive points. Elsewhere in the JOURNAL will be found the papers presented.

The next meeting of the Association will be held at the Kansas City Veterinary College, 1406 Holmes Street, Kansas City, Mo., September 17, 1900, and a sufficient number of papers have already been promised to guarantee an interesting programme.

JOSEPH W. PARKER,
Secretary.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

President Bell, of the New York State Veterinary Medical Society, states that strenuous efforts are being put forth by the officers of the Society to make the forthcoming meeting, to be held at Ithaca the week following that of the American Association at Detroit, one of great interest and value to veterinarians, and that a cordial invitation is extended to the members of the profession of sister States to join with them on this occasion. There will undoubtedly be a feast of reason, as papers are promised from members throughout the State upon subjects of great interest and importance, while the clinics will include surgical demonstrations of the most varied and practical character. The Committee of Arrangements are preparing a programme of delightful social diversions, and it is hoped that all who can will avail themselves of the cordial invitation extended.

BOARDS OF EXAMINERS.

VIRGINIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS. Drs. Harry Bannister, Roanoke; H. L. Drake, Leesburg; Wm. H. Bolyn, Lincoln, and Wm. T. Gilchrist, Norfolk, have recently been appointed on the Virginia State Board of Veterinary Medical Examiners, in the place of Drs. G. C. Faville, Norfolk; Charles McCulloch, Jr., Howardsville; Alex. J. Burkholder, Staunton, and E. P. Niles, Blacksburg. Dr. Thomas M. Sweeney, of Richmond, succeeds himself. The officers of the board are Dr. W. T. Gilchrist, president, and Dr. H. Bannister, secretary.

NORTH DAKOTA STATE BOARD OF VETERINARY MEDICAL EXAMINERS. The annual meeting of this board was held at Grand Forks, N. Dak., April 11, 1900. Meeting called to order in Hotel Dacotah, by the president, Dr. E. J. Davidson. Members present, Drs. Fisher, Grandin, and E. J. Davidson, Grand Forks. Dr. Sheppard, the secretary and treasurer, not being able to attend, the examinations were conducted by Drs. Davidson and Fisher. Two candidates, D. D. McNaughton, of Devil's Lake, and J. W. Hagerman, of Walwalla, passed a very satisfactory examination and were issued certificates to practice in the State. No further business, the meeting adjourned.

MARYLAND STATE BOARD OF VETERINARY MEDICAL EXAMINERS. At the annual meeting of this board, at Baltimore, Md., in June, the following veterinarians were examined and granted the license of the board: F. B. Berger, V.M.D., Baltimore; Glenn W. Horner, V.M.D., Finksburg; Lawrence A. Nolan, V.M.D., Baltimore, and Hulbert Young, V.M.D., Washington, D. C.

MICHIGAN STATE VETERINARY BOARD. This board held its first meeting for examination for applicants, February 6, 1900, at which time the secretary was recommended to issue certificates to thirty-five graduates and two non-graduates. The next meeting of this board will be held August 7, 1900.

IOWA STATE VETERINARY BOARD. In accordance with the Act recently passed by the State Legislature, the Governor has appointed the following well-known veterinarians on the Board: Drs. S. H. Johnson, Carroll; H. E. Talboth, Des Moines, and W. A. Heck, Maquoketa.

THE following appointments have been made as an Executive Committee of the Alumni Association of the American Veterinary College for the year 1900–1901: W. Horace Hoskins, '81, Chairman; Charles S. Atchison, '98; Harry E. Bates, '89; Charles E. Clayton, '93; Roscoe R. Bell, '87; William J. Coates, '77; Theodore A. Keller, '92.

A. V. M. A.

DETROIT, SEPTEMBER, 1900.

Prof. R. S. Huidekoper will visit Toronto, Canada, before reaching Detroit, and there fill the rôle of judge of several classes of horses at the great exhibition held there early in September.

Editor Bell, of the *Review*, will reach Detroit by a roundabout trip through Virginia, where he will spend several days roaming over his rural estate, and will be fully prepared to discuss crops as well as every practical veterinary subject.

Prof. A. Smith, of Toronto, Canada, so active in the work of the great fair held in Toronto in September, will forego his duties for a day and visit the convention at Detroit.

President Pearson has selected Dr. W. Horace Hoskins, of the JOURNAL staff, to respond to the Mayor's welcome at Detroit.

NOTES.

In October of every year upward of 3,000,000 geese are driven to market at Warsaw, Poland, to be sold, and most of them are exported to Germany. The geese often come from remote provinces, and have to travel long distances over rough roads. In order to protect their feet they are "shod" by a peculiar process. First, they are driven through tar poured upon the ground, and then through sand. After the operation has been repeated several times the feet of the geese become covered with a hard crust which effectively protects them.

It is said that nearly one hundred and fifty veterinarians in various parts of the country presented themselves for examination before the army examining board for positions as army veterinarians.

A Chicago architect has made plans for a mansion for stray dogs, and if the designs shall be approved the edifice will be erected at once.

Moral rhymes—

I. THE GOAT.

The goat is not regarded as
  A noble beast, and it
Has never won distinction for
  An undue share of wit.

Compare the homely goat with man;
  How godlike does he stand;
How pitiful the beast becomes
  And how absurdly planned.

Yet, while we look upon the goat
  As neither fair nor wise,
It does not live by taking pills
  Instead of exercise.

II. THE MULE.

Man is the greatest work of God,
  The oxen are his slaves;
He lures the lightning from the cloud
  And harnesses the waves.

To him alone a soul is given,
  And he receives a birth;
The glorious hope of joy in heaven
  When he is done with earth.

Man is sublime; the homely mule
  Is made of poorer stuff;
But mules quit drinking, as a rule,
  When they have had enough.

—S. E. KISER, in *Chicago Times-Herald* (*Rider and Driver*, June 2, 1900).

Veterinary obstetrics should gain apace in keeping with the many valuable contributions to this all-important part of our work in the profession. Dalrymple's contribution, of much worth, will be now added to by a translation of Fröhner and Bayer, which, added to that of Fleming's, which covers the great work of St. Cyr, makes English literature rich in this direction.

Epizootic cellulitis is raging in Wisconsin to such an extent as to seriously interfere with business where horses are used.

Calves may be prevented from sucking cows, and cows may be broken of the habit of sucking themselves, by washing the udders of the cows with a decoction of cayenne pepper. A tablespoonful of cayenne pepper steeped in a pint of water will make a liquid strong enough to disgust the sucking calf or the self-sucking cow. Apply the decoction to the teats and the udder with a rag. Generally but one application is needed. Persistent suckers will rarely tackle the pungent substance a second time.—*Correspondence New York Farmer* (*Jersey Bulletin*, June 27, 1900).

At the Munich meeting of the Tuberculosis Commission, held under the auspices of the German Naturforacher und Aerzte-Versamiung, Italo-Tonta, of Milan, summarized in an admirable way the regulations which should be established by the authorities for the prevention of tuberculosis. These regulations are so concisely and clearly stated that they might well be embodied in a tract and scattered broadcast throughout the world. They are as follows:

1. The periodic disinfection of all localities much frequented by the public, especially rooms in which many individuals congregate, such as schools, society-rooms, churches, cafés, restaurants, hotels, orphanages, barracks, libraries, convents, hospitals, dispensaries, stores, tramway and railway cars, and cabs.
2. The prohibition of spitting on the floors in rooms and public conveyances; the placing of cuspidors in parks and other public places, and in vehicles of transportation.
3. The establishment of special playgrounds for children, in order to avoid their playing in localities which phthisical patients might visit.
4. The disinfection and whitewashing of rooms where a case of phthisis or a death from that disease has occurred.
5. The annual medical inspection of persons frequenting schools, academies, offices, factories, etc. Any cases found should be reported to the authorities.
6. The establishment of people's sanitariums.
7. The hygienic instruction of the tuberculous, so that they may be able to protect themselves and those coming in contact with them.
8. The isolation of the phthisical cases in military and general hospitals—if possible, the erection of separate pavilions.
9. The prohibition of the bathing of the tuberculous with healthy persons; the establishment of separate bath-houses for the former, under medical supervision.

10. The removal of all tuberculous individuals from the schools and their transfer to colonies in the country, where they may be treated.

11. The formation of committees with the object of sending the children of poor persons that are suffering with tuberculosis, or that have died of that disease, to the country, in order to remove them from the infected houses. The children of rich families should also be removed from their homes for a certain length of time.

12. The improvement of the hygienic and dietetic conditions of the poorer classes, by the erection of public kitchens, wayfarers' lodges, bath-houses, etc.

13. Philanthropists should make it their object to improve the nutrition and hygiene of individuals in poor families in which tuberculosis has occurred.

13*a*. The linen of tuberculous persons must be disinfected before being brought into contact with the linen of others.

14. The marriage of very young persons whose appearance suggests that they are inclined to tuberculosis should be opposed. Persons in whose sputum bacilli are present should be prohibited from marrying.

15. The compulsory periodic examination of domestic animals which might become tuberculous.

16. The monthly inspection of stables; supervision of the hygiene of the kitchen, of milking and milking vessels; scrupulous care in creameries.

17. The supervision of markets and abattoirs.

17*a*. The erection of stations at the borders of countries for the inspection of imported animals.

18. Strict regulations regarding products of factories.

19. The giving of weekly lessons in hygiene at all public schools.

20. Each child at school must have its own drinking cup and its own towel. School children should not kiss each other.

21. Instructions to second-hand dealers in books, clothing, etc., to have their wares disinfected. Disinfection of library books, as well as of objects that serve for school or general use, must also be performed at certain intervals.

It may not be possible to carry out all the suggestions contained herein, but they form a very excellent guide for modern sanitary efforts.—*The Medical Record.*

Dogs in Hamburg are taxed according to size—the bigger the dog the higher the tax.

It is evident on looking over the reports of State Veterinary Examining Boards that several colleges of North America did not give sufficient education in the elementary subjects of chemistry, physiology, zoötechnics, sanitary medicine, and meat- and milk-inspection.

It is remarkable to what extent the ox, when slaughtered, is utilized. Not so very long ago fully 40 per cent. of the carcass was wasted. It may be said that to-day nothing is wasted; everything, from the horns to the tail, is turned into money. The blood is used in the refining of sugar, or is hardened and employed in the manufacture of door-knobs and handles; the skin goes to the tanner; the horns and hoofs are turned into combs and buttons, the shin-bones into backs of clothes brushes. The bones of the forefeet are worth $25 a ton, being made into collar buttons, umbrella handles and various novelties after the marrow has been boiled out of them. The small bones are burned instead of coal. From each foot a considerable quantity of oil is extracted; the tail is made into soup. The hair goes to the mattress-maker and upholsterer; the fat to the oleo makers; the intestines are used as sausage wrappers or are sold to gold-beaters. Even the undigested stuff in the stomach is turned to account, being made into paper. If anything is left over it is turned into glue or is put on land as a fertilizer.

The establishment of an Irish veterinary college at Dublin under similar auspices as exist in those at London, Glasgow, and Edinburgh, under royal direction, does not awaken a deep sense of interest in Dublin among local veterinarians, owing to the establishment of a subscriber's membership, entitling the latter at a small annual fee to almost unlimited veterinary services. The abuse of free clinics at many of our American veterinary colleges works an injustice to local members of the profession, and should be abolished.

The Lacey Act of the last Congress, regulating the protection and importation of birds and animals not otherwise provided for, will be placed under the direction of Dr. T. S. Palmer. The further importation of the English house sparrow, the starling, the fruit bat or flying fox, and mongoose, known also as the ichneumon or Pharaoh's rat, *is absolutely prohibited, and permits for their importations will not be issued under any circumstances.*

Dr. W. E. A. Wyman, of Burlington, Wis., has translated the obstetrical part of the recent work of Fröhner, of Berlin, and Bayer, of Vienna. It will be published by the well-known publishing house of W. R. Jenkins, New York.

PERSONALS.

Dr. F. M. Perry, formerly of Houlton, Me., has now located at Fort Fairfield.

Dr. Lawrence A. Nolan, of the 1900 graduating class of the Veterinary Department, University of Pennsylvania, has located in his native city, Baltimore, Md., and will shortly open up hospital facilities in connection with his outside practice.

Dr. W. E. A. Wyman, of Milwaukee, has retired from active practice, owing to ill-health, and is now at Burlington, Wis., recuperating his shattered health.

Dr. W. C. Langdon, formerly of the Experiment Station, North Dakota Agricultural College, and who was compelled to resign owing to ill-health, has now located at Omaha, Neb.

Dr. William Kaul, of St. Mary's, Pa., is Secretary of the Driving Association at that point.

Dr. Reginald Wall, of Carbondale, Pa., has just engaged with the British Government to accompany the transportation of horses and mules from New Orleans to South Africa.

As the JOURNAL goes to press with the July number we learn of the serious illness of Dr. Jos. W. Parker, of Kansas City, Kan., Secretary of the Missouri Valley Veterinary Medical Association, from appendicitis. We are not informed as to whether surgical interference was adopted or not.

Dr. J. C. Burnison, of Kenton, Ohio, has just been appointed State Veterinarian and directed to report for duty on August 1st at Wooster Experiment Station. He will give much attention to laboratory and bacteriological work in his new field of labor.

Dr. E. T. Handy, of Eaton Rapids, Mich., has succeeded to the practice of Dr. W. E. A. Wyman at Milwaukee, Wis.

Dr. Robert Ward, of Baltimore, was summoned to direct the destruction of the elephant "Sport," recently hurt by falling from a railroad car while the train was in motion, receiving such serious injuries as to necessitate his destruction. An autopsy was held.

Drs. A. F. Schrieber, Oscar Seeley, E. M. Ranck, and Thos. B. Rayner were Wednesday visitors to the Philadelphia horse-show.

Dr. J. H. Wattles, of Kansas City, Mo., was a visitor to the East in the month of June, stopping at Washington, Baltimore, Philadelphia, and Atlantic City.

Dr. Norris L. Townsend, of East Moorestown, N. J., has recently received an appointment to the Bureau of Animal Industry and assigned for duty to Kansas City, Mo.

Dr. A. R. May, of Boiling Springs, Pa., was a visitor to the "Quaker City" during convention week. He reports professional work in his district especially good.

Dr. Gurdin G. Sill, of Rising Sun, Md., has located in Baltimore as the assistant of Dr. William Dougherty.

Dr. James Beatty, of New York City, has been transferred to the meat-inspection service at Philadelphia, succeeding Dr. W. B E. Miller.

Dr. A. N. Lushington, of Lynchburg, Va., was a visitor to Philadelphia in June, attending the commencement exercises of the Veterinary Department of the University of Pennsylvania.

Dr. J. H. Tennent, of London, Ontario, is a breeder of collie dogs.

Dr. Leonard Pearson, of Philadelphia, addressed the convention of agricultural teachers at the State College, Bellefonte, Pa., early in June.

Dr. A. H. Wallace, of the Bureau of Animal Industry, has been transferred from Chicago to New York City.

Dr. J. P. Foster, of Bangor, South Dakota, reports an outbreak of glanders in that district. He fills the rôle of Deputy State Veterinarian, having graduated from the Ontario Veterinary College, class of 1900.

Dr. H. Young, of Washington, D. C., who graduated in the class of 1900 at the Veterinary Department, University of Pennsylvania, has been appointed assistant veterinarian to the Board of Health, District of Columbia.

Dr. J. C. Foelker, of Allentown, Pa., was a visitor to Philadelphia in June. Dr. Foelker gives very earnest attention to school affairs in his city.

Dr. W. E. Weihe, graduate of the New York State Veterinary College, is now located at West Raleigh, N. C.

Dr. J. C. McNeil, City Veterinarian of Pittsburg, was one of the ushers at the Republican Convention in Philadelphia in June.

Dr. John W. Adams, of the Veterinary Department of the University of Pennsylvania, finds the lot of a medical student in these days a hard one, and sighs for the return of the good old days when many hours of studentship could be whiled away in football sport.

Dr. S. B. Nelson, of Pullman, Washington, addressed the State Medical Society Convention on May 8th on "The Importance of the Relation of Tuberculosis in Domesticated Animals to that of Man."

Dr. Clarence J. Marshall, of Philadelphia, and Dr. Charles F. Oat, of West Chester, Pa., have been selected as veterinarians to the Devon horseshow.

Among the veterinarians noted at the Philadelphia horseshow were Drs. S. J. J. Harger, Robert Gladfelter, W. Horace Hoskins, Alex. Glass, and a number of students of the Veterinary Department of the University of Pennsylvania.

Dr. Harry Walter, of Trenton, N. J., is now the owner and director of a locomobile.

State Veterinarian Meisner, of Maryland, was a visitor to Philadelphia in June, selecting horses at the horseshow sales held in the "Quaker City."

Drs. Olof Schwarzkopf, of Flushing, L. I., and D. B. Fitzpatrick, of Philadelphia, were recently applicants before the army examination board for the positions of army veterinarians.

The death of Dr. A. H. Vose, of Brockton, Mass., is reported to the JOURNAL.

Dr. E. L. Cornman, of the graduating class of 1900 of the Veterinary Department, University of Pennsylvania, has received the appointment of house surgeon to the Veterinary Hospital, succeeding Dr. M. Jacob. Those who seem best able to judge say there will be an unusual filling up of the canine and feline department incidental thereto, owing to the new house-surgeon's popularity among the ladies.

Dr. A. W. Clement and F. H. Mackie, of Baltimore, Md., were summoned to hold an autopsy on the elephant "Jolly" that dropped dead in Baltimore while being exhibited in conjunction with the Elks' convention.

President R. R. Bell, of the New York State Veterinary Society, is putting forth special efforts for a successful meeting at Ithaca, N. Y., in September.

Dr. John P. Miller, formerly of Lebanon, Pa., has located at Reading, Pa., where he has opened an office and hospital.

Dr. R. S. Huidekoper, of Washington, D. C., was an Atlantic City visitor during the early days in July, and found a deal of pleasure in the splendid surf-bathing afforded by this wonderful seashore resort.

Dr. James B. Rayner, of West Chester, Pa., has been on the sick-list for a number of months. More than fifty years of professional work stands to his credit and good name.

Frank P. Wolken, of the Jersey Farm Dairy Company, of St. Louis, Mo., has become a veterinary student, that the company may have the advantages of constant veterinary supervision.

Dr. William Andress, of the graduating class of 1900 of the Veterinary Department, University of Pennsylvania, will take charge of the practice of Dr. Alex. Glass while he sails the deep waters of the Chesapeake in his new launch.

Drs. James J. Joy, of Detroit, Mich., and W. F. Walsh, of New York City, strongly disapprove of the use of acids in treating punctured wounds of the feet, in the June issue of the *Horseshoers' Journal.*

President Pearson and Dr. Huidekoper interviewed President McKinley in June on the need of recognition with rank of the army veterinarian.

Dr. M. H. Reynolds, of St. Anthony Park, Minn., addressed the State Medical Society on June 28th, at Duluth, on "State Work with Infectious Diseases of Domestic Animals."

Dr. J. Boomer, M.D.V., formerly associated with McKillip Veterinary College of Chicago, has gone to San Francisco, Cal.

Dr. P. I. Kershner, formerly of Kansas City, Mo., has located at Manhattan, Kan.

Dr. Daniel Lemay, of the Seventh United States Cavalry, Columbia Barracks, Havana, Cuba, has gone to Bord-a-Plouffe, Montreal Canada, on a four months' leave of absence.

Dr. George P. Harlan, of Fremont, O., is actively interested in building and loan association societies.

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A CASE OF PNEUMONOMYCOSIS DUE TO THE ASPERGILLUS FUMIGATUS.[1]

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AND

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(*From the Laboratory of the State Live-stock Sanitary Board of Pennsylvania.*)

Historical. The history of mould mycoses is of great interest. In the year 1815 Mayer observed in the bronchi, air-sacs, and lungs of a jay a mould, the first recorded case of parasitism by a fungus of this class.

From this time a number of instances were observed in birds, but it was not until 1857 that Rivoltá published the first case recorded of mycotic infection in a mammal, the subject being a horse, which had a tumor of the pharynx, in the pus of which mould mycelium was demonstrated. In the meantime, however, in 1842, Hughes Bennett had found a fungus in the sputum, cavities, and nodules of a phthisical patient, the first case of mycotic infection observed in man. Others made similar observations, though Sluyter, in 1847, was the first to clearly demonstrate an aspergillus as the fungus in a case of pneumonomycosis. In 1856 Virchow published the reports of four cases of bronchial and pulmonary invasion by the aspergillus in patients who succumbed to other affections, the invasion being regarded as secondary, an opinion generally held up to the time of the Berlin congress in 1890, when Dieulafoy, Chantemesse, and Widal reported their observations on the disease, as seen in the pigeon-feeders of Paris, together with their experimental studies, and for the first time took the ground that the affection was a primary one, and not secondary or terminal. In 1897, Rénon published his "Étude sur l' Aspergillose chez les Animaux et chez l'Homme," the most complete and masterly presentation of the subject which had appeared in any country. Rénon has made a careful study of the disease as seen in man and animals spontaneously, and has also produced it experimentally a great many times. From the vast amount of evidence thus obtained he maintains successfully the position first affirmed by Dieulafoy, Chantemesse, and Widal, namely, the occurrence of a primary pneumo-aspergillosis. In England cases of the primary infection have been reported by Boyce and Arkel and Hinds.

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[1] Read before the Pathological Society of Philadelphia May, 24, 1900. (The cuts used in this article are from the University Medical Magazine.)

Rénon gives an interesting description of aspergillosis as a trade-disease among the pigeon-feeders and hair-sorters of Paris. The men who perform the operation of "gavage" in pigeons take into their mouths a mixture of millet- and vetch-seeds in water, which they force into the mouths of the birds. The hair-sorters use rye-flour in considerable quantities to absorb the grease, so often in hair, to enable them to disentangle the knots. The air in the work-rooms is irrespirable. Birds kept in these rooms die in two or three weeks, coughing and becoming much emaciated; dogs survive some three months, and cats alone are able to resist infection.

Quite recently, 1900, our knowledge has been extended by an important monograph, entitled "Pneumonomykosis Aspergillina," by Dr. F. Saxer, of Jena, Germany. He reports four new cases of aspergillar mycosis observed by himself in man, and gives the details of a large amount of experimental work, in addition to which there is a complete bibliography and review of published cases. It is the most notable addition to the literature of the affection which has appeared since the work of Rénon.

General considerations. Pulmonary aspergillosis is an uncommon disease, and practically all of the exact knowledge we have of it is of recent date. While infection by other mould-fungi has been reported, it is difficult to explain just why the aspergillus fumigatus should be the offending organism in almost all cases. The high temperature at which it thrives, and the wide extent of its distribution in nature no doubt have something to do with it, but cannot account entirely for the fact.

The mode of infection is through the respiratory tract. Only a small number of the spores inspired are able to reach the alveoli, the great majority being arrested on the way, and thrown out in the tracheal and bronchial secretions. Having reached the alveoli, Hildebrandt had shown that they penetrate the epithelial lining without difficulty, and are taken up by the "staubzellen." Both animals and man appear to possess a great degree of immunity to intestinal infection. Grawitz has never observed it; Lucet has seen it only once, and Rénon has produced it only a few times experimentally.

The aspergillus forms no toxin, either intra- or extra-cellular, and its pathogenic power is due entirely to a traumatism exercised by the masses of mycelium, which leads to a necrosis of the cells, and a leucocytic reaction which diminishes the functions of the organs, the final result being an enfeebled condition of the animal and a lessened resistance to hurtful influences. When fruit hyphæ can form, the myriads of spores given off by them may be carried to other parts of the organ, and in this way the foci rapidly multiply, and, as in the case under consideration, practically the entire organ becomes invaded. The opinion held by some authors that in the mould mycoses there is "no fructification or actual multiplication" of the infecting agent, and that the "number of the disease foci corresponds exactly with the number of spores introduced," is erroneous as to the spontaneous disease as well as to the experimental form. In the latter, fruit formation is exceptional, but has been observed by Rénon, and, as in the spontaneous disease, takes place only where there is full communication with the air. It has been observed only in the lung. It is extremely rare for aspergillosis to pass from one animal to another, and infection can take place only by spores and not by mycelium.

In experimental aspergillosis, especially when produced by the injection of a small number of spores, and somewhat slow in its evolution, the nodules bear a very close resemblance to those of tuberculosis, as they are seen in the kidneys, lungs, liver, bone, etc. Rénon considers the affection a pseudo-tuberculosis, which he would designate as "aspergillar tuberculosis," while the nodules are "aspergillar tubercles." Certainly the clinical features of the affection in many cases justify the name. Clinically, in man as well as in animals, the disease presents two distinct types, while there are intermediate forms which partake of the character of both. In one form, the symptoms are almost exactly those of tuberculosis; in the second, emphysema and bronchitis are marked.

In cases where the course of the affection is chronic, the fungus may or may not be found in the tissues. When it has disappeared, a chronic interstitial pneumonia may remain which eventually causes death. In lung-tissue still containing fungus, we find dilated bronchioles, often deprived of their epithelium, leading into pneumonic areas, in which are nodules or pseudo-tubercules made up of mycelium, sometimes so arranged as to resemble closely actinomycosis. There is much phagocytic reaction in these pneumonic areas, indicating an active resistance to the invasion. In cases where the symptoms have been those of emphysema and dyspnœa, patches of consolidation breaking down into cavities are found, with well-marked compensatory emphysema.

Microscopically the walls of the small bronchi are thickened, and both the alveolar walls and cavities contain mycelium. In some areas the tissues are so disorganized as to be unrecognizable, and there is breaking down with the formation of microscopic cavities. The mycelium is in intimate relation with the lung-tissue, and, since it is accompanied with much phagocytic reaction, the invasion seems to be the cause of the lesions.

In old cases in animals we sometimes find foci which have become caseous or even calcareous, usually about the size of a pea, containing both pus and mycelium. Almost always the nodules alternate with areas of pneumonic consolidation and emphysema. An interesting feature is the absence of fetor in cases of gangrene of the lung associated with the aspergillus, the fungus probably inhibiting the growth of putrefactive bacteria. The formation of the "odorless gangrenous cavities of Virchow" is ascribed by Saxer to the action of the aspergillus.

Pneumonomycosis aspergillina is a rare disease among domestic animals, and has not heretofore been described in the United States in a mammal. Cadéac (*Pathologie Interne des Animaux Domestiques*, Paris, 1897), cites five reports of this disease among horses and seven among cattle. Schneidemühl

(*Lehrbuch der Vergleichenden Pathologie und Therapie*, Leipzig, 1898), states that mycotic pneumonia is not rare among animals and that it is especially common among birds. However, cases are not cited to support the statement in regard to the frequency of this condition. He states that mycotic pneumonia is more common among horses and cattle than among sheep and dogs, and that fungi are frequently accidental in the lungs. Friedberger and Fröhner (*Lehrbuch der Speciellen Pathologie und Therapie der Haustheire*, Stuttgart, 1896), quote a report from Pech, dating from the year 1875, in which it is recorded that seven horses kept in one stable and fed on mouldy, musty cut-straw developed mycotic pneumonia at the same time. Ostertag (*Handbuch der Fleischbeschau*, Stuttgart, 1899), calls attention to the resemblance between some cases of aspergillar mycosis of the lungs and tuberculosis, and, in some few instances, there is said to be a certain resemblance to the macroscopic lesions of lung-plague. The small hepatized areas in pneumonomycosis do, indeed, bear some resemblance to the lesions produced by a recent invasion of tubercle bacilli into a restricted area, but are not enough like the sharply circumscribed tubercles that one usually sees to occasion an error in diagnosis.

The resemblance to lung-plague in the present case was even more superficial. As will be seen by reference to the notes on the necropsy, the interlobular connective-tissue was emphysematous, thus causing what was seen on the surface of the lungs as yellowish bands separating the somewhat hyperæmic lobules of the lungs. This caused a distinctly "marbled" appearance, but the marbled appearance was not due to the lesions produced by the fungus; it was due entirely to the emphysema in the interlobular connective-tissue and the hyperæmia of the lobules. It was only upon a closer examination that one could detect the deep-red and comparatively small areas caused by the fungus.

The case reported by Roeckl, in 1884, is quoted by Kitt (*Lehrbuch der Pathologisch-Anatimischen Diagnostik*, Stuttgart, 1895), and is cited here to show that sometimes there may be a closer resemblance to lung-plague. In Roeckl's case the lungs of a cow presented extensive hepatization, to which was added fibrinous pleurisy. There were hemorrhages in the lung, lymph-stasis, and extensive distention of the interlobular connective-tissue, with inflammatory infiltration; thus giving the "marbled" appearance. In addition, there were in part of the lobes numerous, isolated, sharply circumscribed nodules of hemp-seed size, and on the bronchial mucous membrane isolated ulcers 4 to 8 millimetres across, coated with a friable mass of tissue débris. Each nodule was found to contain at its centre an aspergillus colony, with the mycelial threads radiating out into the surrounding tissue. The hepatization was due to the proximity of numerous nodules and accompanying changes in the parenchyma, consisting in capillary ectasis, hemorrhage, and infiltration of leucocytes.

Cultivation and description of the mould. The aspergillus fumigatus is readily cultivated artificially. It grows on almost any of the ordinary culture-media used in bacteriology, but the reaction should be acid, as it grows poorly in alkaline media. The well-known Raulin's fluid is perhaps the best material for culture, especially where the aspergillus must be isolated from mixed growths, as in the examination of sputum, etc. Sabouraud's solution of maltose, prepared according to the following formula, also gives good results: Maltose, 3 to 70 grammes; peptone, 0.75 grammes; distilled water, 100 c.c. To this may be added gelatin or agar to harden it, the latter being preferable, as the aspergillus grows best and forms fruit best at 37° to 39° C. For ordinary use no media give better results than potato, with or without glycerin, and a paste made by rubbing up crumbs of stale bread in water.

Growth is more rapid, however, in Raulin's fluid than in any other medium, mycelium appearing in from five to twelve hours, and spores forming in twelve to fifteen hours. The growth is first a velvety white, soon becoming a delicate bluish-green, which grows darker, and on Raulin's fluid changes after some days to a dark brown. Cultures on potato retain their green color for a long time, while those on bread-paste become brown in time. Cultures retain their vitality for many months unimpaired, and will give growth even after three or four years. Spores do not form below 20° C., and like the mycelium require free access to oxygen for their best development. They measure 2.5μ to 3μ in diameter. In nature the spores are widely distributed, but seem to be especially abundant in grain and vegetable matter. They have considerable powers of resistance to heat and to chemical agents. They are killed by moist heat at 60° C. in five and a half hours, and by bichloride of mercury, 1 to 1000, in fifteen minutes.

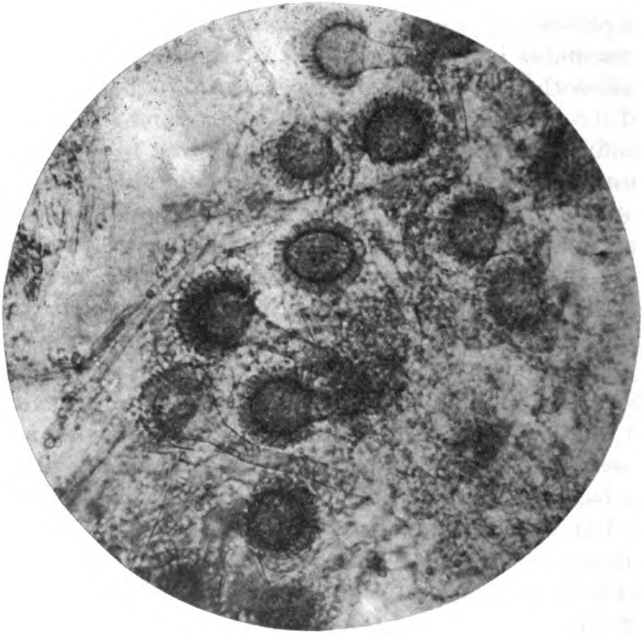
The aspergillus fumigatus is differentiated from other species by its color in cultures, the high temperature at which it grows, the size of its spores, and by its pathogenic power. In practice the aspergillus glaucus is the one most likely to be confounded with it, but it may be recognized by its ability to grow at low temperatures, its delicate green color, the large size of its spores—9μ to 15μ in diameter—and its lack of pathogenic power.

Case. The animal under consideration was a Jersey cow, six years old. She was bred and raised on a farm near Philadelphia, and was never off of this farm until sent to the Veterinary Hospital a short time before she died. The herd of which this cow was a member numbers about eighty animals. The milking-cows are kept in the basement of a large stone barn. The cow-stable is lighted on three sides, but not in such a way as to allow the rays of the sun to reach more than a small fraction of it. The cows are fed from an artificial-stone floor, and are confined in stanchions with no partition to separate them from one another. The hay is thrown down into the stable from a loft above. The floor is frequently strewn with land-plaster, and the atmosphere of the stable is often loaded with dust.

This cow was in bad condition for six months; she was not thrifty, her coat was rough, the skin tight, the nutritive condition bad. During the last two months emaciation was more rapid, and the animal coughed considerably, especially after eating. The cough was dry and harsh. The appetite continued, but the flow of milk diminished to about one-fourth of the previous volume. Suspecting tuberculosis, she was tested with tuberculin, but gave no reaction. She was treated with tonics, but did not improve; on the contrary, her condition became worse, and about two weeks after the test an obstinate diarrhœa developed that could not be controlled by the ordinary farm-treatment, and the owner concluding that the cow was worthless decided that he would destroy her. In order that the animal might be observed more closely a request was made that it should be sent to the Veterinary Hospital of the University of Pennsylvania. This was done. Upon arrival at the hospital it was found that the cow would not eat, and she was weak and depressed; respirations labored, and from forty to sixty per minute; pulse rapid. Percussion of the chest-walls gave a sound that, if anything, was clearer and louder than the normal percussion sound. Upon auscultation it was found that the vesicular and bronchial murmurs were considerably increased in intensity and accompanied here and there by sibilant râles. The cow coughed violently at times. Six days after she came to the hospital the breathing became more rapid and difficult, and the pulse very much accelerated. The animal did not eat, grew weak rapidly, and died four days later, or ten days after admission to the hospital.

Autopsy. The animal was much emaciated. The mucous membrane of the small intestine was catarrhal and showed a small amount of erosion. All the organs were normal except the lungs, one of which was removed to the laboratory for minute examination. The most striking feature on external examination was the extreme amount of emphysema. The lobules were separated from each other as much as 3 to 5 millimetres, and even at some distance from the borders light could be seen through these crevices on holding the lung up before the eyes. On the surface the subpleural connective-tissue was distended

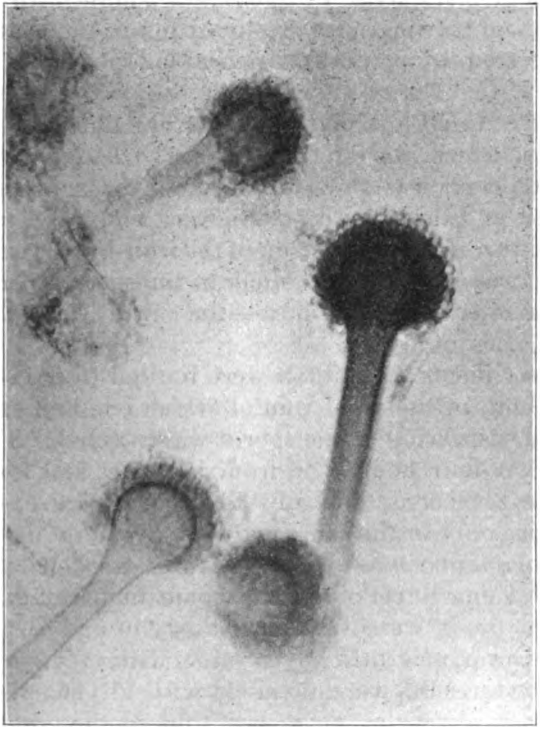
FIG. 1.



A mass of fruit heads and free spores from a scraping of a nodule. Glycerin preparation unstained. X 400.

in large blebs. Upon palpation the lung crackled, and numerous hard nodules could be felt. On section a curious picture was presented, numerous dark-red nodules being seen, the surrounding lung appearing normal in color. In each lung there were from fifty to sixty of these nodules, from 5 to 12 millimetres in diameter, most of them dark red, and closely resembling partially organized blood-clots. However, on crushing a portion in glycerin between two slides and examining under the microscope, they were found to be made up almost entirely of a felted network of mycelial threads. Between these large nodules were numberless smaller areas of the same color, 1 to 2 millimetres in diameter, not perceptible to the touch as nodules, but which were of the same character, and were, no doubt, foci of recent origin. These were seen especially well in por-

FIG. 2.



The same as number 1, but more highly magnified. X 500.

tions of the lung which were preserved by Pick's method, the slight bleaching of the tissues bringing them into relief. On opening some of the interlobular emphysematous spaces small whitish mouldy-looking patches were noticed on nodules which bordered the cavity. Scrapings from these patches were made up entirely of perfect fruit hyphæ with myriads of spores. (See Figs. 1 and 2.) The diagnosis of a mould mycosis was in this way made at once and confirmed by cultures and examination of sections. Cultures were made on glycerinated potato, bouillon, and plain agar, by opening a nodule with sterile instruments and tearing out a small portion of the centre, which was transferred to the culture-tubes and placed in the incubator at 39° C. Abundant growth was obtained on the potato by the end of thirty-six hours, white at first, and soon changing to yellowish-green, then to dark green. The growth in the bouillon and agar was slow. Plates and flasks of bread-paste were made, and these, with potato, were employed for all subsequent cultures. The formation of the fruit-hyphæ was studied, and the spores measured a number of times, being from 2.5μ to 3.5μ in diameter. By these means the culture was identified as the aspergillus fumigatus.

Our experiments on animals were limited to the inoculation of one rabbit, in the aural vein of which one-half cubic centimetre of a suspension of the spores was injected. The animal died in forty-four hours, and from the liver and kidneys cultures were recovered. All of the organs were examined in sections, but only in the same two was mycelium detected.

Microscopic examination. The nodules were hardened and embedded, some in celloidin, and some in paraffin. Various staining methods were tried, hæmatoxylin and eosin, carbolthionine, Gram, and lithium carmine with Weigert's fibrinstain. Good results were obtained with all, but the carmine and Weigert gave the most beautiful picture, and by this method the fungus was most perfectly demonstrated, the spores and mycelium taking on a deep purple color. The histological picture was studied mainly in sections stained by hæmatoxylin and eosin. The bronchial epithelium was normal in places, but for the most part the columnar cells have been replaced by a sort of membrane, which appears to be made up almost entirely of a felt-work of mycelial threads. From this membrane hyphæ grow out into the lumen of the bronchus, and here, owing, no doubt, to the supply of air, fruit-hyphæ arise, with perfect sterigmata and spores. There is no cellular nor other exudate and very little débris. The under surface of this membrane is of looser texture, and contains some cellular infiltration made up of round-cells, leucocytes, proliferated connective-cells and red blood-corpuscles. The adjacent structures are closely filled with a cellular infiltration of the same description, with a quantity of mycelium, this extending to the neighboring alveoli, which under a low power (× 80) appear to have preserved their outline; but with greater amplification (× 625) are seen to have lost all their normal structure, showing clumps of homogenous, irregular masses, which stain faintly with eosin, and are probably of connective-tissue origin.

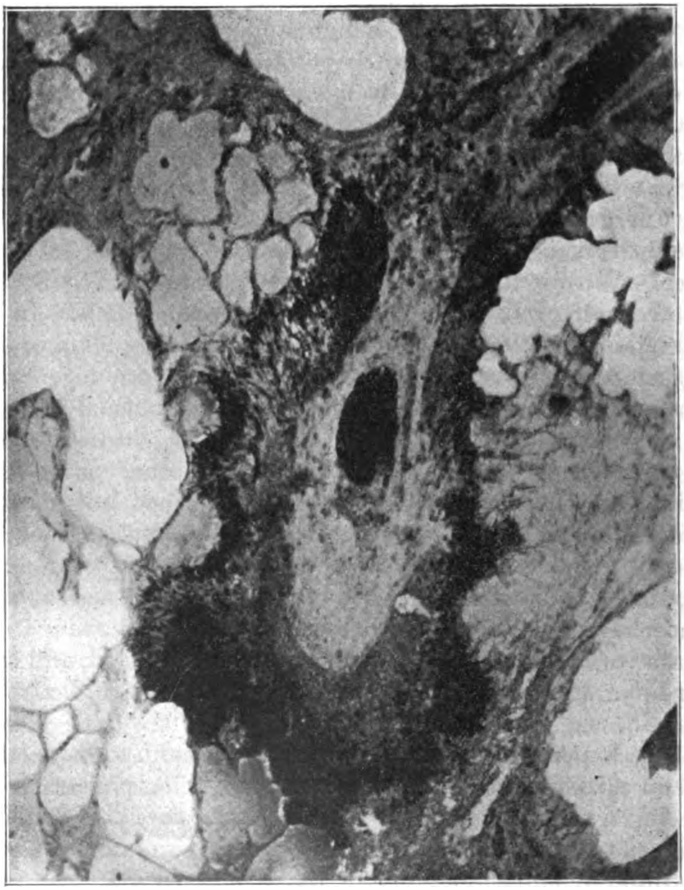
In these areas the mycelium has followed the alveolar wall as a trellis, the tissue seeming to oppose no obstacle to its advance. Within the alveoli is a finely granular débris, with some coarser particles, probably the remains of cells. In sections stained with carbol-thionine large numbers of mast-cells are seen in the alveolar walls. Bordering these degenerated areas are alveoli which have retained their normal structure and are filled with a network of fibrin holding in its meshes a few cells—leucocytes and septal cells. In other parts of the sections are areas resembling those just described, but in which all anatomical landmarks have been destroyed, so that it is impossible to tell whether or not the spaces seen are bronchi.

Some sections show a widespread interstitial and alveolar hemorrhage, the blood showing a considerable increase in the number of leucocytes. The capillaries are congested, and areas of œdema with thickening of the alveolar walls are not uncommon.

There is peri-bronchitis and arteritis, while in some sections arterial thrombosis is seen, the thrombus being penetrated by mycelium, though no fruit is found. Areas are also found in which the alveoli are filled with a cellular exudate producing consolidation and thickening of the alveolar walls.

Emphysema, both interstitial and vesicular, is marked, and often extreme. Around the borders of the interstitial cavities is a distinct zone made up of red blood-cells, leucocytes, and a homogeneous material, which is yellowish in fresh as well as in stained sections. The areas contain very little mycelium. All sections show a small amount of anthracosis. The appearance of sections varies in different nodules, and in the same nodule as they are taken further and further away from the centre. In general the fungus is thickest at the centre, so thick in many instances that the lung-tissue is hidden entirely, and grows less as we go outward. The tissue changes noted, formation of fibrin, etc., take place in a zone beyond the greatest growth of the fungus. In other nodules the fungus is evenly distributed throughout, following the alveolar walls. In these the tissue changes are slight. At times the

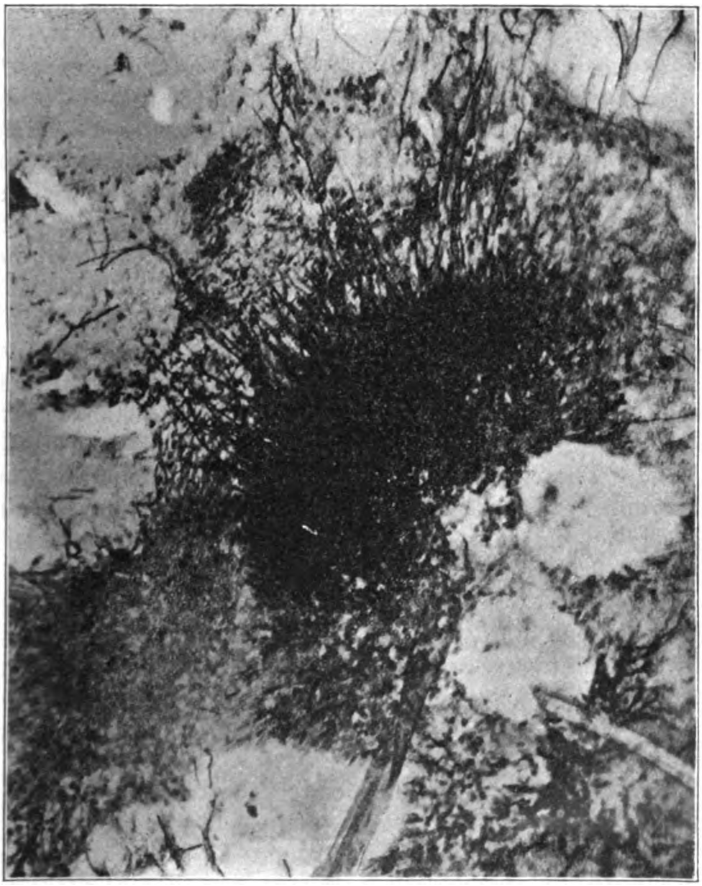
FIG. 3.



Section through nodule in lung, showing actinomycotic form of mould. Stained by Lithium carmine and Weigert's fibrin method. X 50.

fungus grows in dense brush-like clusters, closely resembling actinomycosis under a low magnification. (See Fig. 3.) This form is considered to show a marked reaction and resistance on the part of the animal, and a lowered vitality in the fungus.

FIG. 4.



A section through nodule in lung, showing brush-like forms and mycelium in cross section. Stained by Lithium carmine and Weigert's fibrin method. X 150.

When found it indicates that the aspergillosis is a primary and not a secondary or terminal affection. No giant cells were found in any section.

Fruit formation was not observed in the substance of the tissues at any time. It was observed most frequently in bronchi, which were for the most part denuded of their epithelium, and next in emphysematous cavities, where it could be detected in clusters by the naked eye. Fruit was also found in sections, in spaces the nature of which it was impossible to determine accurately. Wherever the formation of fruit was seen there were innumerable free spores as well as those still attached to the sterigmata, but in no case were spores detected in the substance of the tissues.

In many sections, especially those from near the centre of the nodules, the mass of mycelium was so dense that the proper structure of the tissues was obscured. Besides the dense growths resembling actinomycosis, already described, other brush-like clusters, not unlike them, were frequently seen. (See Fig. 4.) These differ from the former in being somewhat less compact and in the fact that from their periphery numerous hyphæ run out into the surrounding tissues, whereas in the actinomycoctic form the masses are sharply defined, and only here and there a few threads grow out beyond the cluster. Their appearance suggests that they may be actinomycotic forms which have finally overcome the resistance of the tissues. Emphysema is less marked in the neighborhood of the latter. These differences are well brought out in the photomicrographs. When a cluster is obliquely cut we have a mass of closely-set cut-ends of mycelium in cross section as seen in the left lower corner of Fig. 4.

The cow was examined carefully for the lesions of tuberculosis, and in one lung some four or five caseous and calcareous nodules 1 centimetre in diameter were found in which the tubercle bacillus was demonstrated, but no mycelium could be detected. In no part of the lung was there coexistence of the two infections.

The fact that the animal did not react to tuberculin, though tuberculosis was present, is noteworthy and suggests that the mould infection may interfere with the test—a source of error to be guarded against.

We have reported this case at some length as being of unusual interest. We have been unable to find any record of a similar one ever having been observed in America, the literature on the subject in this country being limited to two cases in birds, and one case reported by Osler to this society in 1887, in which mycelium was found in the sputum of a woman suffering from bronchial asthma.

We consider the case one of primary aspergillosis for the following reasons:

1. The aspergillar nodules were by far the most extensive lesions found, and amply sufficient to account for the symptoms and death.

2. No other lesions were found which could have caused the symptoms, the tuberculous nodules being few in number and confined to a small portion of one lung. They were also evidently not progressive.

3. The actinomycotic forms of the aspergillus were found in a number of the nodules, indicating strong resistance on the part of the tissues.

In conclusion, we wish to express our thanks to Dr. C. Y. White, of the Pepper Clinical Laboratory, for assistance in the histological examination of the nodules, and to Mr. Wm. H. Walmsley for his beautiful photomicrographs.

We have used freely the article on "Pulmonary Aspergillosis" by Rolleston, in *Allbutt's System of Medicine*, the monograph of Saxer, and especially the most admirable work of Rénon, to the authors of which we make grateful acknowledgments.

THE RELATION OF TUBERCULOSIS IN DOMESTICATED ANIMALS AND MAN.[1]

By Sofus B. Nelson, D.V.M.,
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Since Koch, in 1882, demonstrated the bacillus tuberculosis to be the specific cause of tuberculosis, this disease has been a source of constant study. Without doubt it is one of the most important diseases with which man has to contend. Judging from the number of scientists that are laboring to unravel some one of the many phases of tuberculosis, of interest to the welfare of mankind, to which Koch's discovery was the first key, this importance seems to be indeed realized. Nearly all animals are susceptible to this disease. Among our domestic animals the cow, horse, sheep, pig, dog, cat, and chicken succumb to it. It has been observed in wild animals, such as the lion, tiger, bear, giraffe, monkey, etc., that have been placed and kept in confinement in zoological gardens. That rodents, especially in densely populated districts, are seriously affected has been demonstrated.

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[1] Read before the Washington State Medical Society at Spokane, May 9th, 1900.

That certain wild animals, when kept in close confinement, contract and succumb to tuberculosis is not very important to us except as a fact; but that our domestic animals—our dumb friends, our source of various foods and material for our comforts and luxuries—are subject to this disease is of great importance, and deserves careful and thorough consideration. Of all the domestic animals the cow is the most susceptible to tuberculosis. In the others it is not found nearly so frequently. It is quite a rare disease in swine, as the following statistical statement shows: At Augsburg, out of 30,922 swine slaughtered, only 3 were affected.

Considering the domestic animals from a standpoint of economic importance, because of their individual utility to man, the cow stands first in the list, as she has all the points possessed by the other animals, and some that they do not. Here, then, is the cow, the most serviceable animal to man, and at the same time the most susceptible to a certain contagious disease.

The associating together of these two facts would not deserve a moment's serious thought if the contagious disease, tuberculosis, which affects the cow was not transmissible to man, and *vice versa*.

Before discussing this phase of the question it may be advisable to see whether or not the disease is the same in the different lower animals. Investigators are unanimous that tuberculosis in the lower mammals is the same, *i. e.*, that the bacillus tuberculosis is the bacterium that causes the disease. There has, however, been a great deal of discussion over the question whether the bacillus that causes avian and mammalian tuberculosis is identical. Rivolta, Maffuci, Strauss, and others have held that they were not identical, either in morphology or pathogenesis, since the bacillus of avian tuberculosis will grow at 43° C., while that of mammalian will not. Also that it is very rarely that tuberculosis of mammals is transmitted to chickens. Finally, that certain mammals, as the dog and guinea-pig are not susceptible to the avian form. These arguments have been met by Nocard and other, in that the tuberculosis produced by the two bacilli were identical in clinical and post-mortem appearances. Numerous experiments have proven that tuberculosis is transmissible from one of the lower animals to the other. It remains now to be proven whether or not, tuberculosis is transmissible from man to the lower animals and back again. To prove or disprove the transmissibility from man to the lower animals is comparatively easy, as material wherewith to carry out these experiments is easily obtained. But to prove that tuberculosis may or may not be transmitted to man, is a more difficult matter, as in this case it is not possible to carry out direct experiments.

Chauveau, Kruse, and other have shown experimentally that tuberculosis may be transmitted from man to the lower animals, especially to the ox. There are many cases of accidental infections recorded. For instance, that sometimes tuberculosis is caused in chickens, either by inoculations with human cultures, or by the chickens obtaining expectorations from human tuberculous patients. Veterinarian T. A. Bray, of Kansas City, reports an observation of young chickens becoming tuberculous under the latter condition. I have already stated that certain authorities claim that there are two causes of tuberculosis, the two bacilli being individually different. However, Nocard has, by growing cultures of human tubercle bacillus *in vivo*, succeeded in intensely modifying the characters of the same, so that the dry, scaly cultures that are pathogenic to the dog and guinea-pig, have become soft, unctuous and easily handled on media, and do not affect the guinea-pig. Yet the first culture will not cause tuberculosis in the chicken; this not occurring until the bacillus has passed through the chicken three times. This is very strong evidence that the two bacilli are simply two varieties of the same species. Theobald Smith also records the observation of two varieties of the tubercle bacilli from two mammals, one being from a member of the bear family (*Nasua naria*), the other from a tuberculous bull. They differed especially in the pathogenic power toward rabbits.

Concerning the infection of man from the lower animals, there are a number of authentic cases of local cutaneous inoculations of tuberculosis occurring in veterinarians, demonstrators of anatomy and others. Senn, in his *Principles of Surgery*, makes reference to this fact. It is still more difficult to obtain clear and definite evidence of infection in man from the ingestion of food furnished from tuberculous animals. Here, however, Dr. Law, of Cornell, has collected the statistics of a large number of cases recorded by Lydtin; Demme, of Berne; Howe, of North Hadley, Mass.; Dr. Brown, of Ithaca, N. Y.; Ernst, in his *Infectiousness of Milk*, and others, where patients died from tuberculosis which could hardly be explained in any other manner, considering their environments, than that the disease was caused through the direct use of infected food-material obtained from cattle. In addition to this is the strong argument that wherever tuberculosis is extensive in cattle, the same is true in man. Where, in any part of the world, cattle are absent, and, therefore, tuberculosis, as far as they are concerned, man is also comparatively free from it. Although not positively proven that tuberculosis is transmissible from the lower animals to man, especially through the various foods furnished by the cow, yet the generalized evidence is so great that it is dangerous to doubt it.

The danger of using the products of a tuberculous animal for food varies according to the degree the animal is affected and the organ affected. Take, for instance, an animal that has generalized tuberculosis, neither her milk nor flesh is fit for food; but if an animal has simply a slight lesion of a gland then the meat, when well cooked, may be perfectly safe for consumption. If the udder is affected the milk is more likely to contain the bacillus than when the udder is not affected, in which case the milk is more dangerous to use in its raw form.

All of this leads up to the question of prevalence of the disease in man and animals. Regarding the prevalence of the disease in man I can do no better than to quote the distinguished ex-President of the Iowa State Medical Society, Dr. J. M. Emmert, who says: "Take as an illustration tuberculosis, or the 'Great White Plague,' as it is called, one out of every seven deaths throughout the world is caused by tuberculosis. Iowa contributes nine deaths every day, and three thousand during the year; the United States one hundred and fifty thousand yearly, and the world five millions per year. Contemplate these figures for a minute, and then ask yourselves why the people are not aroused to the dangers that surround them, and demand that our law-makers take some action to protect them."

In our own State there were last year 242 deaths from tuberculosis reported to the office of the Secretary of the State Board of Health, the total number of deaths being 2568. The number of deaths in this new State from tuberculosis is over 9 per cent. of the entire number of deaths. Calculating the present population of the State at 800,000, we have a death-rate of thirty per hundred thousand.

From the outbreak of smallpox, which we had last year, there were seven deaths in the State. This outbreak cost the counties and cities of the State thousands of dollars, and people were willing to go to this necessary expense to stamp it out. Here we have a comparison of two hundred and forty-two deaths from tuberculosis, without any effort to stamp it out, or even to control or lessen its ravages; with seven deaths from smallpox, with stringent quarantine laws and plenty of funds available to eradicate it. Why is it that the people of this State, as well as of many others, allow this pennywise poundfoolish condition of affairs to continue? I believe it is because they are ignorant of the real existing conditions. They need to be educated regarding the danger and the control of tuberculosis, the same as they have been about smallpox. The very fact that the layman believes that tuberculosis is hereditary, instead of acquired, and that therefore nothing can be done to prevent the spread of the disease except through a law which prohibits the marriage of persons affected with tuberculosis, is the one great stumbling-block toward advancement. It is hard to make the people believe that tuberculosis is rarely hereditary. They think it incredible when the following statistics are quoted to them: That at the Munich abattoirs, from 1878 to 1882, the examinations of nearly one million of calves showed that only five were tuberculous, while during the same time the percentage in old cattle varied from 2 to 11 per cent.

It the way of control what should be done? I do not wish to say anything in regard to the control of tuberculous persons. That is a question which must be viewed from so many sides that there is not time to discuss it in this paper. But the control of cattle that supply food to man is a much simpler question. I have tried to show earlier in this article that tuberculous cattle played an important factor in the distribution of tuberculosis to man. As this is the case, and since Koch gave to the world a nearly certain test for the discovery of tuberculosis in cattle—the tuberculin-test—it seems that at least the milk-supply which forms such a large part of the food of the child might be protected for him by this method.

Regarding the supply of meat for food careful ante- and post-mortem inspection will improve the value of meat as such. I need not go into details at this time how this should be done, as that will come later.

It is only a matter of time until the people will become educated in this and see the necessity of preventing the spread of this preventable disease. It is this latter burden of educating the people that will, like many previous ones have, fall on your shoulders as the family physician and adviser.

CASTRATION OF CRYPTORCHIDS (RIDGLINGS).

BY V. J. ANDRE, V.S.,
ST. GENEVIEVE, MO.

THE castration of cryptorchids is an operation which is performed by many without great success. I have seen two cases with this result. In one the horse was cast and held down for four hours, the incision being made on left side of middle line, about six inches long. The hand was introduced by the operator and worked at least an hour, so the farmer said, when the operator, being tired, told his partner to try and locate the testicle; he worked for quite a while, and from one to the other they exchanged turns without success. They told the farmer that the horse must be a clean-cut horse, but the farmer (owner) insisted he was not a clean-cut horse.

As luck would have it, I was coming along the road from a call, and the farmer, knowing me, walked toward the fence and stopped me, saying: "I have two men up there back of the barn trying to alter my ridgling, and they have been there near about four hours and cannot find the testicle. Can you not come in and help them out?" I told him I did not wish to meddle in other peoples' business, as it was not right; but he begged of me to come. I finally consented to go up to the barn. The little I here repeat, as near as I can recollect, is in the farmer's own words.

On the way to the barn, he said: "Those people must be —— quacks, although they said they knew their business, and I consented to let them work on the horse."

On reaching the horse, the owner remarked: "Gentlemen, let this young man try to locate the testicle for you." One remarked: "The h—— with him! He cannot find it any better than we can." The farmer insisted, and said: "Either let him try or let the horse up, as the animal is mine." They finally consented, and said to the owner: "I guess he'll get fooled as we did."

I rolled up my sleeves and immersed my hands in water containing carbolic acid. I made the écraseur ready.

On introducing my hand, I detected at once that the horse was a flanker. Taking the écraseur, in less than four minutes the testicle was detached from the cord—it not being a very large one, about the size of a turkey's egg. The farmer then asked of the other operators: "Where did you learn your business?" One said, "from self-experience;" the other, "from his father."

After the departure of the so-styled castrators, the farmer told me he would always investigate if the party he called to treat or operate on any of his animals was a qualified man or not. If all would do as he said he would do in the future, we would soon stamp out the so-called quackism which is so extensively practised in the United States.

In connection with the little story I have just finished, I will give my method of operating on the cryptorchid.

A horse brought to me for operation is placed in the hospital and kept for twenty-four hours, is given bran-mash, two quarts, at meals, and allowed only one bucket of water at each meal for twenty-four hours; he is then brought out in the yard and examined for hernia, etc., to see if fit for the operation; he is then placed on the mat, the side-lines are placed on the animal, also the trip-rope. When all is ready, I handle the trip-rope, and at same time notify my assistant to pull. When the animal is down, I take it upon myself to tie all ropes, as I am the operator and I must protect myself. The animal being securely bound down, I have a pail brought to the side of him. The pail I commonly use is the milk-bucket, as it is generally the cleanest bucket on the place; get it half-full of rain-water and put in enough creolin to make a solution strength of 1/20. I then use a sponge which I keep in a glass bottle, and use only in castration. I wash the scrotum well and then wring out same sponge and dry off well. My écraseur, which I keep in a chamois sac, lined with white muslin, I place in the creolin solution, having been sterilized before leaving home as well as the other instruments. I then make my incision about one inch to the side of the median line, from before backwards, just long enough to allow the four fingers to go through, only cutting through the skin; then, using the forefinger, break down the fascia, working downward and forward to ring; on reaching the ring I break through just large enough to allow two fingers through. I then insert one hand into rectum, and it is a great assistance in helping to locate the testicle; it is then brought up, and, as near the outer surface as possible, and taken off by the écraseur, which I use in all my ridgling castrations. On entire horses I use the emusculator, which I have found successful in both. It is not necessary for me to give a full description, as my fellow-veterinarian, Dr. Butterfield, of South Montrose, Pa., gave you a very good description in the May number.

After Treatment: Feed lightly; give horse ten miles exercise morning and evening; keep incisions well open, and wash scrotum every morning and evening with lukewarm water and apply weak solution of creolin 1 to 150.

I have operated on eleven, all abdominal, and several flankers. One, a yearling, both testicles in the abdomen; four, three years old; five, six years old; one, ten years old.

One case in particular I wish to relate to you. It was one of the four-year-old; bay horse weighing 1200 pounds, good condition; brought to me to be operated on at the hospital. The following morning he was cast and the operation performed. The testicle taken from this horse weighed nineteen ounces, and in perfectly healthy state. I preserved it in formaldehyde solution, 20 per cent., and will send it to Professor Smith, of the Ontario Veterinary College, to be placed in the museum. This horse was operated on April 19, 1899, with good recovery. I would like to hear from any fellow-veterinarian if he has operated on any cryptorchid and found a larger testicle than the one I have told you about.

I believe the reason that so large a percentage die is that the opening in the peritoneum is made too large and peritonitis sets up, and, furthermore, many veterinarians do not take the necessary antiseptic precautions, thinking, "Oh! well, he is only a horse." Allow me to say we must take the same precautions that the human surgeon does, and try to bring our profession up to a standard as near to that as we possibly can. I think the time will come when the people of this country will look upon us as the people look upon the veterinarian in foreign countries, as England, France, Germany, etc.

TUBERCULOSIS.[1]

By W. H. Lake, V.S.,
MIAMI, MANITOBA.

Tuberculosis, commonly known as consumption, is a fatal, contagious, and infectious disease, very destructive to human and animal life, and which has baffled the skill of the medical profession to find a cure for. It occurs in man and all the domesticated animals. Cattle, swine, and poultry are most frequently affected; horses next; sheep and goats next; dogs and cats still less.

Definition. Tuberculosis is a contagious disease characterized by the formation of tubercules or nodules, which vary in size from a pinhead to that of a walnut, and contain the bacillus tuberculosis, which produces the disease.

Etiology. The disease cannot develop without the germ, therefore the germ has to find its way into some part of the system before the disease can be produced, and the most prolific way is from expectorated bacilli which are lying on the ground or floors, become dried, are ground up, and the germs floating in the air are inhaled. In a weak or debilitated system they are liable to find a culture ground, from which the germs grow and the disease is developed. The germs are also sometimes found in the feces and milk of the cow. Drinking the milk has produced the disease in children, calves, and pigs. The bacillus of one mammal multiplies in the bodies of other mammals. Dogs and poultry have been infected by expectorated bacilli from human patients having consumption.

Semeiology. Generally the first symptom noticed is a husky cough. Auscultation reveals a dull, semi-solid sound. Generally in the early stage there is little or no constitutional disturbance; but when the system begins to suffer from lack of nutrition the appetite may be completely lost, emaciation takes place, tuberculous patches may appear on sides, hydrothorax may occur as a complication, general debility and death, due to an exhausting diarrhœa.

Pathology. The first step to be taken is the discovery of the germ which, having been taken in with the food into the stomach, passes through the walls of the intestines, rarely affecting those organs; then passing into the circulation and lodging in some part of the body. Hamilton says they go in colonies of three, five, or nine, but usually five, and having found a suitable place to locate in they begin reproducing themselves. The result is inflammation, with degeneration of a caseous nature. This degeneration may be fibrous or hyaline. This spot is the tubercle, and is generally about the size of a millet-seed, and as more tissue is involved it grows and spreads. Then exudation and formation of neoplastic tissue as a result, the tissue being nearly always fibrous at first and the germ not too active. In the tubercle is a deposit of calcareous salts which incloses the tubercle in a fibrous capsule and renders it harmless for all time to come. This is the course of a mild case which ends favorably. This is the reason why so many germs which are inhaled do not cause tuberculosis; but when the bacilli find a suitable culture ground they increase in numbers very fast, and one colony after another is started. As a consequence the tubercles spread rapidly until as many as a dozen places may be affected before death takes place.

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[1] Presented at the annual meeting of the Veterinary Association of Manitoba.

In some cases where the bacilli work with great activity we get inflammation, followed by rapid ulceration, decay, and death of part or parts affected; lung tissue is destroyed, blood vessels are eaten in two, and we have what has been termed the hemorrhage of consumption. Cases have been seen where the contents of sacks or capsules were liquid. This is due to not being inclosed in calcareous matter.

Tuberculosis is divided into several stages: First, caseous without inflammation; second, exudation and formation of a fibrous capsule; third, ulceration; fourth is where lime-salts are deposited around the caseous matter and the lung looks as if it were covered with lumps of chalk, putrefactive matter is absorbed and, passing through the blood, causes blood-poisoning.

Diagnosis in autopsy. This I consider should be of great interest to the veterinary profession at large, as by it we would be able to tell whether an animal had tuberculosis or not, providing we had never seen the animal before. The diagnostic features are six or seven: 1. The presence of miliary tubercles or nodules, either running in lines. 2. Arranged in groups or distributed evenly through the affected organ. 3. The nodules being about the size of a millet-seed and of uniformity of size. 4. Are hard and of a cartilaginous nature. 5. Can be easily dissected from the tissue. 6. Color usually gray, but may be of a creamy color.

Parts liable to infection. The lungs are the most likely organ to be affected, as the germs are taken in by respiration, then the spleen, kidneys, liver, brain, pleura, peritoneum, and germs have been found in the iris of the eye and aqueous humor; bones of human beings are often affected, and this has been termed scrofula.

Treatment. Where deemed advisable to resort to treatment the animal should have good nourishing food—oily foods—as linseed-meal, oil-cake, and in human beings cod-liver oil, fat meats, good nursing, and good healthy surroundings.

Prophylactic treatment. Undoubtedly the disease is contagious, and where a case is met with which looks suspicious it should be subjected to the tuberculin-test, and if it reacts should at once be destroyed, as the danger is great both to human and animal life in keeping such an animal around, especially a cow. If you inspect meats and find any ulceration from this disease, condemn it as unfit for use, and always beware of the meat or milk from a coughing cow. I think the tuberculin-test is so well understood by qualified veterinarians as to need no explanation here.

NOTES.

Veterinarians of the far West who have become accustomed to rely on the merits of the drugs and chemicals furnished by Merck & Co., of New York, will now be better served by the establishment of a branch house in Chicago, where all their products will be accessible.

A recent *Bulletin* of the Nebraska Experiment Station, referring to the danger of feeding sorghum, calls special attention to the fact that what danger exists is rather transitory in the sorghum, and due to its being fed at times when certain changes have taken place due to unhealthy growth of the plant.

Veterinarian Shaw, of Benson, Arizona, writes of the welcome reception of the JOURNAL in that far-away locality, where the hand of a fellow-practitioner has not been felt for nearly six months. In addition to quarantine-line work and the importation of animals from Mexico, Dr. Shaw has also the inspection of sheep entering into inter-State trade. The season in that district has been very dry, causing heavy losses among the animals.

ABSTRACTS FROM FOREIGN JOURNALS.

MUMPS IN THE DOG. By Busquet and Boudeaud. Translated from the *Comptes Rendus de la Société de Biologie*, vol. lii., No. 25, July 13, 1900, by Mazÿck P. Ravenel, M.D. (From the Laboratory of the State Live Sock Sanitary Board of Pennsylvania.)

Mumps, by which is meant a specific swelling of the salivary glands, and especially the parotids, is a very rare disease in the dog. Medical literature seems to be limited to cases observed by Schüssele (1842), Whitaker, Hertwig, and Busquet.

Recently, we have been able to prove: 1st, that the dog is susceptible to mumps; 2d, that the disease can be transmitted from dog to dog; 3d, that one finds in the sick dog a coccus which in the saliva grows as a diplo-streptococcus, analogous or identical with that found in man in cases of mumps by Féré and Busquet in 1895, and in the blood as a diplococcus which is analogous or identical with that found in man by Laveran and Catrin in 1893.

On December 8, 1897, a gentleman noticed a marked change in the appearance of his dog. The animal was dull, and refused food. In the evening frequent chills occurred. Next day the dog remained lying down, ate very little, and showed signs of obstruction in the nares, sneezing frequently. On the 12th the right parotid was swollen and hard, reaching the size of a small hen's egg, the lobules being clearly defined. The right submaxillary lymphatic glands were enlarged, and the skin over the region œdematous. Pressure over the area caused the animal to cry. The mucous membrane of the mouth was dry and saliva scant.

A diagnosis of mumps was made. By the 14th there was improvement, the animal ate and was brighter, the swelling persisting, however. This day the buccal mucous surface was disinfected with great care, and saliva drawn direct from the duct of Steno, with which cultures were made on various media. In all cultures a diplo-streptococcus was found, in pure culture in some tubes and mixed with a diplococcus and a staphylococcus in others. Inoculation of dogs was not practicable, unfortunately, and rabbits and guinea-pigs gave no results.

The dog had been in a room where it had access to a young fox-terrier of ten months, with which it had played. On the 14th this puppy was found playing with the cotton-wads which had been used to wipe out the mouth of the one with mumps. Two days later it sneezed frequently and had a rough cough, but remained bright and ate heartily. On the morning of the 17th there was a swelling in the right parotid region as large as an orange, which began at the base of the ear and descended behind the posterior border of the right inferior maxilla and went forward almost to the angle of the mouth. The parotid gland was swollen, and the duct of Steno stood out like a cord and was very hard to the touch. There was not much evidence of pain except on pressure. The skin over the right parotid and submaxillary regions was slightly œdematous. The buccal mucous membrane was dry and somewhat discolored; saliva scant. The general condition was little disturbed; the appetite scarcely affected. By the 19th the swelling and œdema had abated sensibly, the enlargement of the gland diminishing progressively until the 24th.

Cultures were made on the 18th from blood drawn from a vein and from saliva taken from the duct of Steno. The same organisms were found as in the first dog: diplo-streptococci, diplococci, and staphylococci in the saliva, and diplococci in the blood.

In both animals there was the same onset and the same clinical evolution of the disease, after three or four days of incubation dulness, general fatigue, loss of appetite, frequent chills, snuffling, and much sneezing; soon the cough appeared, about the same time as the swelling of the salivary glands, especially the parotid and submaxillary. The lobes of the glands can be easily made out. The skin over the region of the affected glands is œdematous and somewhat painful. Steno's duct is swollen, hard, and stands out like a cord. The corresponding lymphatic glands become affected early, from the third to fourth day. The buccal mucous surfaces are dry and somewhat discolored, and the flow of the saliva is scant. Mastication of hard matter is slightly painful. The general condition, except for a manifest fatigue, does not seem to be much affected. The entire course of the disease is about twelve days.

The authors conclude that there is in dogs an infectious disease which is localized in the salivary glands, and which may be transmitted from one animal to another. The disease corresponds entirely with what is known as mumps in man. The bacteriology will be worked out more thoroughly by the authors and reported on later.

REPORTS OF CASES.

CASTRATION OF AN ELEPHANT.

By Dr. Walter Shaw,
DAYTON, OHIO,
AND
Dr. W. G. King Dodds,
CINCINNATI, OHIO.

The patient was the property of "The Wallace Circus Co." For many months he was so vicious as to imperil the lives of his attendants. This elephant ("Pilot," by name) was thirty-five years old, an age at which refractoriness should yield to obedience and the animal become docile. Pilot weighed nine thousand pounds and was ten feet tall. His unruly disposition made it dangerous to exhibit him, and the devising of some means to subdue him was imperative. After due deliberation his proprietor decided to have him castrated.

In February, 1899, Mr. Wallace advised us of his decision, and we visited the winter quarters of the circus on his beautiful farm by the classic banks of the Wabash, Peru, Ind. Having surveyed the situation we gave instructions for making excavation, platform, operating-table, and all other arrangements necessary for the completion of the operation, including instruments.

The manner of confining the elephant and the mode of operation are as follows: Having secured two railroad rails on ties placed in the excavation, four large iron bands were fastened around each rail and tie beneath, for the purpose of attaching cable-chains, block and tackle; the space between the rails was filled with cement and this was overlaid with heavy oak planks. His caretaker placed a large cable-chain around the elephant's girth, in which was a strong ring just below his chest. To this ring another cable-chain was fastened and passed through a ring safely attached to his tusk, then about the anterior of trunk, through another ring on opposite tusk back to ring immediately under the body. In addition to this (as a guarantee of safety), a strong rope was passed several times around his trunk and tusks. In this condition he was conducted on the platform which he held in place by means of his own weight. To each foot a large cable-chain was secured slightly slack, this was accomplished to warrant safety in the event that the block and tackle would break. His front feet were then drawn forward and outward, and his hind feet were drawn backward and outward by means of block and tackle. At this juncture the operating-table, four feet wide and sixteen feet long, was arranged beneath his body; then his feet were extended until his body came in contact with the table slightly canted to right side. A rope was attached to each tusk and fastened at right angles.

As he was put under the influence of an anæsthetic the utmost caution was exercised. When insensible, an incision was made in his left side through the dermis just posterior to last rib, beginning at the end of the transverse process of lumbar vertebræ, extending downward about ten inches. The skin was an inch thick, white and almost bloodless; the external three-fourths of an inch was very viscous and difficult to cut. An eight-inch opening was made through the muscles and peritoneum, in which the hand was introduced, bearing forward and finding the glands just posterior to the kidneys. These glands were loosely but securely attached. The emasculator, which was made with a screw to remove the glands, broke before either gland was displaced, because it was too highly tempered, otherwise it would have answered the purpose. This misfortune made it necessary to reach in at arm's length and cut the ligature, the best possible way under the circumstances, and remove the glands by the aid of the knife. The peritoneum, muscles and skin were sutured in the usual manner, and the incision was closed with wound gelatin. The operation was made aseptic so far as possible. The influence of the anæsthetic had waned by the time the operation was completed, and the animal did not seem to be distressed.

He lived fifty-seven hours, during which time his appetite was normal, did not seem to suffer until an hour before his death. The direct cause of his death is not known, as no examination was made. With the right kind of instruments properly constructed, this operation, which required an hour and a-half, could have been accomplished in thirty minutes. Under favorable conditions, and with suitable instruments, we believe that the operation could be successfully performed, as it would then not be necessary to have the abdominal cavity open more than ten or fifteen minutes.

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1. YELLOW HOGS. 2. VERMINOUS JAUNDICE.

By A. S. Wheeler, V.M.D.,
BILTMORE FARMS, N. C.

1. During the summer months of 1891 and 1892, while acting in the capacity of meat-inspector for the Louisiana State Board of Health, I encountered several shipments of yellow hogs from Tennessee at the Crescent City Slaughter-house. All the tissues were discolored, and especially the adipose tissue. Suspecting jaundice, although the condition of the liver and bile did not bear out the suspicion, I had the chemist of the board make an examination to determine whether or not the discoloration was caused by the bile *salts*. The results of these tests disproved the jaundice theory.

Correspondence with two of the principal shippers did not solve the difficulty, although they both agreed that the cause was in the feeding, but did not agree as to what that feed was.

The odor and taste of these hogs was of a disagreeable fishy character. I regret my inability to explain more definitely the cause of the yellow in these hogs. A simple statement of this condition may bring forth something more complete upon the subject from those who have been in a position to investigate during the past few years, during which such an impetus has been given to meat-inspection.

2. I have met with one case in which the lumen of the bile-duct was completely occluded by an echinorrhynchus gigas. There was a profound jaundice, especially of the fat; the duct was much thickened and indurated; the liver enlarged and dark; gall-bladder contained about two ounces of inspissated bile. This case was seen in the Crescent City Slaughter-house.

Another case similiar to the foregoing occurred in one of the pigs in the Biltmore herd. This pig had been unthrifty for some time, and was put in the cull-lot. Three or four days before his death he had been off feed and dull. His age was about five months.

Post-mortem revealed the same picture as given above; the liver weighed two pounds, the pig weighing thirty-eight pounds. The obstructing worm in this case was an ascaris suilla.

DEPARTMENT OF SURGERY.

BY W. E. A. WYMAN, M.D.V., V.S.,
BURLINGTON, WIS.

J. A. SLOAN, B.SC., M.D.V.,
SAN FRANCISCO, CAL.

DR. ROBERT JAY, M.D.V.,
WEST LIBERTY, IA.

SURGERY OF THE PENIS.

PHIMOSIS. More or less stenosis of the preputial opening, interfering with the protrusion of the penis, is termed phimosis.

This condition may be congenital or it may be acquired, the latter the more frequent one. In geldings where, as the result of castration, atrophy of the penis is seen, phimosis—due to the irritating influence of decomposing urine in the preputial cavity, causing at first an acrobustitis—is likely to occur. Other agents causing phimosis are: neoplasms; undue accumulation of preputial smegma; the empirical introduction of pepper, etc.; traumatic insults, as kicks.

At first, slight œdema of the sheath, painful to the touch, is noticed. On introducing the hand into the preputial cavity, accumulated and hardened, badly-smelling sebaceous matter is met, the head of the penis feeling hot and painful. In stallions the pain is very evident during an erection. At times there is complete cessation of micturition, accompanied by colicky symptoms of course. In those cases there is usually a blockage, due to accumulated secretions in the urethral sinus (a cavity beneath the urethral tube). These accumulated secretions are termed vulgarly "beans." As a rule, this condition terminates favorably; nevertheless, a urethritis or abscess-formations in the sheath are possibilities.

The treatment of congenital phimosis is a surgical one. The preputial opening is simply incised until proper dimensions exist, it being unquestionably well to cauterize the edges of the wounds to retard healing and prevent too vigorous scar-tissue formation, or, in other words, another stricture, which again would have to be split. Personally, I prefer the cautery for this purpose. Thorough cleansing of the field of operation is essential before any surgical steps are taken, and hardly requires mention. As the preliminary steps: Soak with warm soapsuds; remove all accumulations; irrigate with a 1 per cent. solution of formalin or 2 per cent. germol, chloronaptholeum, creolin, etc., After the operation irrigate daily with some antiseptic. I give a 2 per cent. alum solution the preference.

Warts, new-growths of a malignant type, papillomata, etc., constituting a cause of phimosis, are to be removed in the ordinary way. Multiple neoplasmata, some of which cannot be reached from the preputial opening, I have removed by splitting the sheath in the median line, thus obtaining an excellent field for the operation. Such a wound is treated in no way different from ordinary incised wounds.

Paraphimosis. Whenever the penis cannot be retracted, or only partly retracted into the sheath, due to a narrowing of the preputial opening, the state of paraphimosis exists. Traumatism is the most frequent cause; undue swelling following castration; coitus; irritants, such as pepper, introduced into the sheath; finally, new-growths on the glans penis, preventing its retraction.

The swollen sheath with the free portion of the penis hanging from it attract attention. Depending on the amount of time passed, the inflammatory infiltration into the parts eventually encircles and grasps the penis, as a result of which circulatory disturbances set in, the head of the penis swells, is very painful, and appears reddened. Even cases which at first sight appear as serious ones, unless paralysis of the penis aggravates the condition, respond very kindly to treatment.

A great many agents are recommended: Massage of the parts; bandaging of the penis, and keeping the bandage moist with astringents, such as alum, tannic acid, etc. Of the various therapeutic resources, the following has given me excellent results, especially in bad cases which appeared quite hopeless, and great improvement was visible within twenty-four hours; therefore, I suggest its use primarily in cases where inflammatory infiltration is well advanced. An ointment of one part cantharides vesic. and eleven parts of adepis is rubbed into the diseased parts. Four to six hours later, when vesication is established, slight scarification all around the circumference of the stenosed preputial opening is executed. As previously stated, the good results of this mode of treatment manifest themselves within twenty-four hours. In all cases of some moment a suspensory is, in my opinion, a valuable therapeutic associate. Should paraphimosis be due to new-growths on the penis, the causa belli, the neoplasm, must be removed. As a last resource, when all other means have failed, the amputation of the penis may be practised.

Wounds of the Prepuce. More or less hemorrhage due to injury of branches of the subcutaneous abdominal artery may be present. Barb-wire cuts, quite frequently seen in the country, may even penetrate through all the layers of the sheath, even wounding the penis. Kicks and pointed objects may also give rise to wounds. Hemorrhage within the sheath may cause urinary retention, the coagulated blood preventing the flow of urine. Unless phimosis, due to a stricture, depending on scar-tissue formation, is likely to follow, the prognosis is good, as most lesions respond readily to treatment.

In regard to the treatment, it is essential to stop the hemorrhage, either by ligating the vessels, should some of the larger ones have been cut, or by bringing the edges of the wound together by closely inserted stitches. Even in lacerated wounds it is well to sew, as the wound gaps less subsequently. Foreign bodies, as splinters, glass, etc., are necessarily to be removed before the active treatment is begun. Antiseptic washes conclude the treatment. The stitches are to be removed between the fourth and sixth day, when slight sloughing first shows itself.

A very interesting case of phimosis, in a yearling colt, due to a penetrating barb-wire cut across the whole of the sheath, I saw through the courtesy of my neighbor, Dr. F. Moyle, of Waterford, Wis. Dr. Moyle says the prepuce was divided at a right angle to the linea alba. The wound was treated according to the recognized rules of surgery and the possibility of phimosis prognosed. Eventually the stricture became so well developed that even the small finger could not be passed. To do away with acrobustitis and balanitis, the opening was enlarged with a probe-pointed bistoury, the edges of the wound cauterized, and antiseptic irrigations ordered. The penis at the time the operation was performed was about the size of a little finger, having atrophied to that extent.

Wounds of the Penis. The pendulous portion of the penis is more exposed to injuries than the fixed portion, and owing to the rich blood-supply hemorrhage is an essential factor. Depending on the intensity of the lesion, the prognosis would change. Thus in superficial wounds it is good; but when the urethra is injured, possibly cut into, a guarded prognosis is imperative. The causes are projecting nails, barb-wire, kicks from ticklish mares, violent coitus, etc., as in mares which are not horsing.

The symptoms are well marked. The penis may hang out of the sheath, and in serious cases paralysis is present. Enormous swellings in the scrotal region, even as far as the thighs, due to infiltration of blood, may be noticed; such complications as paraphimosis, balantitis, paralysis of the penis, even suppression of the urine, may occur.

In superficial wounds antiseptic irrigations are sufficient. When the urethra is severed, closely inserted catgut stitches are indicated as well as permanent catherization until healing has taken place to prevent urethral stenosis. Two cases treated by the writer in this manner made an apparent recovery, to develop, within four months after removal of the catheter, a stricture which eventually led to amputation of the penis. The stricture was treated at first with dilators, but the animals became so vicious that a long story was shortened by amputating the penis just above the stricture. I have never found it necessary to ligate the arteries as the hemorrhage subsided as soon as the sutures were put in. Should there be marked infiltration of blood, due to stasis in the penis, a pressure-bandage is of use.

Of course, in those cases where the penis is practically cut into, amputation of the severed part becomes necessary. In making the prognosis it is well to remember that in all wounds of the penis accompanied by loss of tissue the shape of the penis is likely to become changed, due to scar-tissue formation; thus the penis may become crooked, slightly twisted or bent.

In conclusion, bruises of the tissues of the penis are of interest. Stallions, when kicked on the penis during its state of erection, often show symptoms which are alarming. As a result of the extravasation of blood into the spongy portion of the corpus cavernosum an enormous swelling of the penis occurs. The tumor is soft, very painful and fluctuates. Phimosis or paraphimosis may be present. Ordinary contusions of the penis terminate by resolution.

As regards the hæmatoma of the penis, alluded to above, the main treatment is to leave it alone, and with due respect to the knife the surgeon loves so well, do not cut. The reasons are: Early puncture of a hæmatoma is very likely to be followed by serious hemorrhage and also infection. In three or four days—in between using cooling irrigations, followed immediately by light exercise and a suspensory—the remains of the tumor may be freed by an incision, and the cavity flushed with some antiseptic solutions regularly after that. When puncturing the tumor on the inferior face of the penis care should be taken to avoid injury to the urethra.

THERAPEUTICAL AND PHARMACEUTICAL NOTES.

UNDER THE DIRECTION OF W. J. MARTIN, M.D.C.,
KANKAKEE, ILL.

OIL OF TURPENTINE AS A THERAPEUTIC AGENT. Oil of turpentine being an agent much used in veterinary practice, we give the following symposium of the drug for what it is worth:

In tetanus: Dr. Cooper, the editor of the *Eclectic Medical Gleaner*, is not a believer in serum-therapy. Speaking of the treatment of tetanus lately he gives his own method for what it may be worth, he having treated a dozen cases, three typical, with trismus and opisthotonos, three less developed, and the other six showing only prodromata. All of these were tramautic cases and all of them recovered. He employed the same treatment in all these cases. "I know why I followed this clinical method after my experience with the first case," Dr. Cooper writes; "but I only partially know why I adopted the treatment in the first instance. In several of the cases the wound seemed to be entirely beyond the tetanic symptoms developed. In each case I reopened or freshened the wound, and I kept it saturated at first (for a day or two) with oil of turpentine. After a couple of days I used this more sparingly. I used this remedy because I had often heard Dr. West, an old and experienced physician, say that he had never known a punctured or lacerated wound (or any other kind, of course), which was treated in this way to result in lockjaw. That, too, has been my experience. This would seem to give color to the theory that there is a specific something (possibly a microbe) which causes tetanus. Turpentine is a germicide, but it is also several other things. My other local treatment consisted in having the patient's spine rubbed frequently with strong mustard-water, quite warm. I had the spine kept in an erythematous condition all through. For internal treatment I gave gelsemium and macrotys in combination. I pushed them to the physiological limit. The quantity and frequency of the dose must be controlled by the age, sex, and general physical condition of the patient."

In diphtheria: Dr. W. C. Wright, of Unionville, Mich., contributes a note to the *Post Graduate*, in which he says that he has treated thirty-seven cases of diphtheria without a death or any alarming symptoms. He writes: "To a child from ten to sixteen years old I have given teaspoonful doses of undiluted oil of turpentine every two hours until from four to six doses have been administered, and then wait about forty-eight hours before repeating the dose. In only five cases out of thirty-seven have I had to repeat the medication. In nearly every case the temperature returned to normal inside of twelve hours, and remained so. In two cases the temperature went up a second time, but again returned to normal when the oil of turpentine was given again. The only reason I can suggest in explanation of the absence of any manifestation of urinary disorder followed the administration of such large and frequently-repeated doses of oil of turpentine is that in diphtheria turpentine is an antidote to the toxins as well as an antiseptic.

PRODUCTION OF CAMPHOR. At the present time Japan, by the acquisition of the Island of Formosa, has practically a monopoly in the production and sale of the world's supply of camphor. According to recent United States consular reports Japan proper produces but 300,000 pounds of camphor annually; China never exceeds 220,000 pounds; while the island of Formosa yielded, in 1895, 7,000,000 pounds. Since that period the annual production of camphor in Formosa has averaged about 6,000,000 pounds.

The production and refining of camphor in Formosa has lately passed under the complete control of the Japanese Government, which fixes the amount that shall be annually produced and exported from the island. The price paid to the native camphor producers in the interior of the island by the Government for the crude camphor is about $15 per 133 pounds.

For the present at least, and perhaps for many years to come, camphor is likely to remain at its present high price. Attempts have of late years been made to introduce the camphor tree into the southern part of Florida, and from recent accounts this experiment is meeting with a fair degree of success.

Arsenic in Organic Bodies. M. Gautier, after an exhaustive chemical analysis of the human body, finds that arsenic is present in the normal thyroid gland (¾ of a millegramme for each 100 grammes of thyroid-body). Arsenic is also found in the skin, in the hair, in the mammary glands, in the milk, in bone and brain-tissues. No arsenic was found in the following organs: The liver, the kidneys, the muscles, the testes and seminiferous tubules, the mucous membrane, the uterus, and the blood.

A case of death after antirabic treatment has just occurred in Paris, and was described by Dr. Menetrier. The only really apparent symptom was hydrophobic spasm. Death took place by syncope. On performing the autopsy no lesion of the nervous system could be found.

Bichloride Eye-wash. Mercuric chloride, 0.05; rose-water, 150; tinct. of opium, 1.5; mix.

Lassar's Sublimate-carbolic Salve. Mercuric chloride, 0.5 to 1; carbolic acid, 10 to 20; zinc ointment, 5000; mix.

Oil of turpentine is said to remove the odor of iodoform from the hands or instruments.

Healing Ointment. Dr. L. C. Allen, of Hoschton, Ga., writes that he has found the following an effective, all-round, healing-ointment, which at the same time is cheap. Its beneficial action is due to the antiseptic and stimulating properties of the oil of turpentine. Melt together and stir until cold, beeswax, 1 ounce; petrolatum, 1 ounce; oil turpentine, 1 ounce.

Antiseptic Wound Oil. The same correspondent is fond of using the following dressing in minor surgery, such as cuts, wounds, after removal of tumors, etc.: Oil of turpentine, 1 ounce; olive oil, sterilized, 1 ounce. A liberal quantity of this is poured over the wound, and a thin pad of gauze saturated with it is laid on. Over this more gauze (cotton), then bandage. The oil keeps the surface of the wound moist, allowing the liquid excretions to escape from the wound (drainage) and be carried off into the dressing by capillary attraction. This preparation is a powerful stimulant and antiseptic, and wounds heal rapidly and aseptically under its use.

Salt an Antidote to Strychnine. The following interesting editorial note appeared in a late issue of the *Alkaloidal Clinic:* An observant friend tells me that he has frequently seen dogs saved from strychnine-poisoning by the use of large doses of common salt; this after the dog was in spasms. He first saw some boys recovering a dog that had been treated to a dose of strychnine by the police. The method used was to fill the dog's mouth with a big handful of salt and wash it down with water from an old tin can. The dog soon straightened out and was all right. Is it a chemical antidote, or does it cause elimination of the poison by creating an active exosmosis? Who knows? Who has made the same observation? Does it apply to the human family?—*Western Druggist.*

Creolin Soap. Tonzig (*Gazzeta degli Ospedali*, January 14, 1900) has made a series of experiments with creolin soaps of various strengths and manufacture. Most of the common disinfecting soaps have been found by experimenters to be less efficacious for purposes of disinfection than the simple soaps. With regard to the creolin soaps the author tested their germicidal power on a species of chlorigenic vibrio and found that with one single exception (a resinous soap containing 20 per cent. of creolin) they were all less active as germicides than simple soaps of the same nature, but minus creolin. Five different kinds of soap containing creolin in various proportions were tried. In the author's opinion the chief benefit in adding creolin to the soap is derived by the manufacturer, for it adds nothing to, but detracts from the disinfecting power of the soap.—*British Medical Journal, February 24, 1900.*

SELECTION.

LEAD AS A POSSIBLE CAUSE OF AZOTURIA.

Dr. A. W. Balch (*Journal of the Boston Society of Medical Sciences*, May), owing to the similarity between certain of the symptoms existing in azoturia and those commonly found in lead-poisoning, examined the urine and tissue-specimen taken from normal horses. In both urine and tissues lead was found in cases other than azoturia, but the amounts were much larger and the lead was much more widely distributed in the azoturia cases. The organs examined included brain, liver, spleen, kidney, and psoas muscle.

Dr. W. R. Brinckerhoff, supplementingDr. Balch's chemical investigations in the same journal, as a result of eleven autopsies on undoubted cases of azoturia, reaches the following conclusions.

1. The acute degenerations of the liver and kidney, the proliferation of epithelioid cells in the lymph-follicles of the spleen, and the focal necroses in the liver, are similar to lesions found in man during various of the acute infectious diseases. In the case of the human being such changes are generally regarded as manifestations of a toxæmia.
2. The pigmentation of the spleen indicates nothing more than a destruction of blood-corpuscles, and is common to a number of diseases in both man and animals.
3. The degeneration of the psoas muscle is quite analogous to the Zenker's degeneration seen in typhoid fever.
4. The chronic interstitial nephritis would indicate either that some toxic substance had acted for a considerable time, or that there had been previous attacks of an acute nature.

We have, then, the picture of a pathological process combining chronic and acute factors. This condition seems most reasonably explained by postulating the presence in the organism of a toxic substance, preferably one capable of causing both acute and chronic changes. *New York Medical Journal*, August 4, 1900.

ONE has but to take a cursory glance of *Bulletin No.* 66 of the West Virginia Agricultural Experiment Station to learn of the category of fruit-diseases and the remedies for their treatment and eradication. Successful fruit-culture is no longer a matter of luck, no more than successful breeding and rearing of animals. Eternal vigilance after the enemies of animate and inanimate nature is the watchword of success. Alike in fruit diseases as in animal diseases, " a stitch in time saves nine." These are lessons well learned, and the amount of valuable information on these lines furnished by our Experiment Station staff brings results worth thrice the cost of maintenance of these important centres of knowledge.

CORRESPONDENCE.

ARMY LEGISLATION.

COMMITTEE ON ARMY LEGISLATION,
P. O. Box 189,
WASHINGTON, D. C., August 1, 1900.

DEAR COLLEAGUE: Senator Kenney's bill for the establishment of an organized Veterinary Corps in the United States Army passed the United States Senate as "Section 14 of S. 4300," A bill for the efficiency of the Army (known as the Army Reorganization Bill).

This Army Bill was under consideration for some ten days by the Military Committee of the House of Representatives, but action upon it has been delayed until the reconvening of Congress in December next.

If the present bill, "S. 4300," is then taken up, we feel assured of the passage of our veterinary section.

But we must foresee the probability of an entirely new Army Reorganization Bill being drafted to take its place, and in that case our section will again have to be acted upon in the Senate.

We have had the assurance of a majority of the Senators and of the Congressmen in the House of Representatives that they will support our bill.

This is not sufficient. We must have the promise of support from two-thirds to prevent the possibility of any accident or obstacle being placed in our way.

We have had to overcome the opposition of a few powerful individuals in the War Department and a few powerful Senators in the Military Committee of the Senate, who influenced the other members of the committee, even some of our friends.

Senator Gallinger said of the opposition of the War Department:

"Now, Mr. President, it seems to me that no valid objection has been made against this amendment. The Secretary of War, it is true, seems to have reported against it; but I take it that the Secretary of War knows less about this subject than General Sheridan, or General Miles, or the Quartermaster-General, or men who have been educated in military science know about it. Hence I certainly cannot lay as great stress upon his opinion as I lay upon the opinions of those great officers who were thoroughly acquainted with the needs of the Army and who speak from actual observation and experience."

The opposition advanced by members of the Military Committee of the Senate consisted of personal opinions. No argument of fact was advanced. On the contrary, facts were distorted, and such arguments were used as that: "The captain of a troop of cavalry knows more about a horse than any veterinarian from a college;" "it would pay the English Government to send over here and get forty or fifty or a hundred farriers to go down there [Africa] and save their horses now from the veterinarians who graduated from their colleges;" and a Senator who has a son in the army "would not see a veterinary surgeon rank with him."

An outcry was made against a "bureau," and a compromise was offered simply to give rank to the veterinarians employed in the cavalry.

Under the system of administration in the United States Army an efficient and economical service cannot be had in any other way than that provided for in our blil, any more than any business house could employ thirty or fifty workmen effectively without a foreman or superintendent.

Our opponents ignored entirely the service needed for the artillery, for the Quartermaster Department, for inspection of animal food, and for instruction in our military schools.

They ignored absolutely the experience of every other army in the world on this subject.

We can expect opposition again from some individuals. The printed data sent you during the last winter covers the subject.

For any misunderstanding of the subject, or argument in opposition we will, upon request from you, send at once the necessary facts in answer.

Here in Washington your Representatives are too busy to go into details, and leave matters to committees. Obtain their interest while they have time at home.

In the coming election remember: An old Representative is worth five new ones, if your friend; and is worse than ten new ones, if against you. Experience teaches them how to legislate. Remember also: A promise of "consideration," "careful consideration," etc., means absolutely nothing. Obtain a distinct promise of support, or continue until you do get it.

Interest the members of your State Legislature and obtain their influence to secure a fair hearing from your Senators.

We demand an organized veterinary corps, as provided for in S. 4300, when this bill passes, or as a part of the *first* Army Bill which does pass in its place when Congress reconvenes. Any compromise simply of rank, without organization, will not increase the efficiency of the army, and will set back the proper recognition of the profession a quarter of a century.

This is a question of merit, economy, and necessity for the efficiency of the army, and is not a political one, as the following names of some of our supporters show:

Senators: Allison, Iowa; Bacon, Georgia; Frye, Maine; Gallinger, New Hampshire; Hale, Maine; Kenney, Delaware; McEnery, Louisiana; Morgan, Alabama; Stewart, Nevada; and Wolcott, Colorado.

Congressmen: Allen, Mississippi; Capron, Rhode Island; Clayton, New York; Gaines, Tennessee; Hull, Iowa; Joy, Missouri; Lentz, Ohio; Mercer, Nebraska; Sulzer, New York; and Tawney, Minnesota.

In order that we may make an intelligent campaign before the reconvening of Congress, our State Secretaries in conjunction with the officers of the State veterinary associations will appoint committees and sub-committees for each State and Congressional district. You will be furnished with a list of Senators and Congressmen in your State, and you are begged to join with the committees in obtaining from them, when they have leisure at home, an interview to place the subject before them, and secure from them renewed promise of support for our bill next December.

Please inform your State Secretary *at once* if you will act on the committees; with your address, add county, or ward in cities.

At our annual meeting at Detroit in September we will complete our organization for canvass; should be positively assured of success, and know what opposition we must meet and overcome.

The eight thousand veterinarians in the United States to-day represent a profession, and are not to be classed on the pay-list with teamsters, as part of them are in the U. S. Army under the present system. For the committee,

RUSH S. HUIDEKOPER,
Secretary.

NOTICE. All veterinarians, whether members of the Association or not, are cordially invited and urged to attend the annual meeting at Detroit, Mich., September 4 to 6, 1900. This meeting will be the largest which has been held since the organization in 1863, and the scientific and practical papers promised will make it the most valuable and interesting. For information as to reduced railroad fares and special hotel rates, write your State Secretary, or the General Secretary, Dr. S. Stewart, Kansas City, Kansas.

LEONARD PEARSON,
President.

EDITORIALS.

ARMY VETERINARY CORPS.

In the June number of the Journal we published the discussion in the Senate of the United States on the adoption of Senator Kenney's amendment to the bill to increase the efficiency of the military establishment of the United States, which became Section 14 of said bill (commonly known as the Army Reorganization bill).[1]

Although this legislation had received an unusual amount of publicity, as we had been obliged to "educate" many otherwise intelligent people on this neglected question, it was remarkable how absolutely ignorant of the subject the few active opponents and their unthinking followers were.

For the latter an explanation is easily found in the following quotation:

> "Congress is a body of small legislatures. The vast mass of affairs involved in the care of the government are subdivided, and the consideration of them is assigned to committees. On every subject, except those of political party importance or unquestioned merit, the action in regard to them is left to a committee to decide, and the vote in the Senate and the House of Representatives is a perfunctory measure.
>
> "Fortunately for us, the *establishment of a Veterinary Corps in the Army is one of unquestioned merit,* and appeals to the common sense and first instinct of economy in every legislator who has taken the time to consider it.[2] All of the higher authorities in the army have expressed their opinion that its immediate establishment is a necessity."—Journal of Comparative Medicine and Veterinary Archives, January, 1900.

For the former, we can only credit them with not having studied the subject in order to understand it.

The main object of the bill (to make an organized effective service such as exists in the army of every other country in the civilized world, and is approved by all the older officers of experience in the United States Army) was evaded by the opponents of the bill, and personal opinions and distorted facts were the only arguments advanced. The veterinary matter was not considered by the Senate Committee, and when a member of that committee requested a hearing upon it he was informed that it would "NOT BE CONSIDERED."

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[1] See Congressional Record, May 4, 1900, and Journal of Comparative Medicine and Veterinary Archives, June 1900, page 361.

[2] We can safely state that two-thirds of the Senators who voted against the Veterinary Bill in the Senate had not given it personal attention, but voted "nay" because the Military Committee had not reported favorably upon it. One of them, in reply to a letter asking for his consideration of the Veterinary Bill, wrote back a civil letter stating his opinion on the "Loud" Bill, a post-office matter, which showed how little attention he had given it.

However, the Senate did consider it, and did so favorably.

Capital was made of the improved status of the veterinary service; "*an entire change since the civil war*," which consists in the provisions of the Act of March 2, 1899—thirty-five years after the civil war.

The following official rulings show the status referred to:

[CIRCULAR, No. 55.]

HEADQUARTERS OF THE ARMY.
ADJUTANT GENERAL'S OFFICE,
WASHINGTON, NOVEMBER 23, 1899.

The following decisions have been made and are published to the Army for the information of all concerned:

* * * * * *

2. STATUS AND ALLOWANCES OF VETERINARIANS. A veterinarian appointed under the Act of Congress approved March 2, 1899, is not a commissioned officer or an enlisted man, but a civil employé. A veterinarian of the second class is entitled to all the allowances or emoluments of a sergeant-major, other than his pay proper, which is fixed by law, the same as if he were an enlisted man.—[*Decision Sec. War, November* 7, 1889.--290576 *A. G. O.*]

By command of MAJOR-GENERAL MILES:

H. C. CORBIN,
Adjutant General.

RULINGS: PAYMASTER-GENERAL'S OFFICE.

VETERINARIANS: First class, pay $125 per month. Act approved March 2, 1899. G. O. 36, A. G. O., 1899.

Note: Under decision of Secretary of War, a veterinarian is a civil employé, and as such is not entitled to service pay, commutation of quarters, mileage, nor to travel pay upon discharge. Par. 2, Cir. 55, A. G. O., 1899, and Dec. 2d, Comp., par. 2087, edition of 1869.

Second class, pay $75 per month. Act approved March 2, 1899. G. O. 36, A. G. O., 1899.

Note: Authorized to charge $3.71 per month on monthly pay account, in lieu of clothing allowance. Letter Adjutant-General to Paymaster-General, dated January 27, 1900. Not entitled to increased pay for service, mileage, nor travel pay upon discharge. Same status with regard to civil employé as first class veterinarians.

The following testimony reviews the subject almost as completely as it can be gone into:

[EXTRACTS FROM HEARING BEFORE THE COMMITTEE OF MILITARY AFFAIRS OF THE HOUSE OF REPRESENTATIVES ON THE BILL (S. 4300) ENTITLED "AN ACT TO INCREASE THE EFFICIENCY OF THE MILITARY ESTABLISHMENT OF THE UNITED STATES."]

HOUSE OF REPRESENTATIVES,
MONDAY, MAY 14, 1900.

The committee met at 10.30 o'clock A.M., Hon. J. A. T. Hull in the chair.

Statement of Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, United States Department of Agriculture.

The Chairman: Dr. Salmon, the committee would be glad to hear from you. I believe you are somewhat interested in some of the provisions of this bill.

Dr. Salmon: I would like to explain, Mr. Chairman, that I am not connected with the Army. I have no desires in that direction; but I come here to represent the American Veterinary Medical Association, which appointed me chairman of a committee to present the matter of veterinary service in the Army to Congress, with the object of getting a more efficient service than we have had in the past.

The veterinarians are interested in this matter for two reasons. In the first place, they are patriotic citizens of the country, and they have had an opportunity to know something of the veterinary service in other armies and in our Army, by reason of having had members of our association in the veterinary service of the United States; and in the second place, they desire to secure some amelioration of the condition of the veterinarians in the army service.

Our members who have been in the Army have presented to us the unpleasantness of their condition in the Army under the present system, the impossibility of improving the service, and the fact that men of self-respect can hardly remain there, to such a degree that the association has become interested in the matter, and desirous, if possible, to have Congress do something to give the veterinarians the status which is given to other educated men and the representatives of other professions.

Now, the veterinarians have had some opportunity to know what is required of veterinarians in the army service and how necessary their assistance is for the efficiency of the Army, because, really, the necessities of the European armies constituted the foundation of the veterinary profession. The first veterinary schools were established in France because of the needs of the military service, and the advantages of having trained veterinarians were so soon seen by other countries that veterinary schools (military veterinary schools, mostly) were established in the principal countries of Europe; and I believe every one of the European armies has an organized veterinary corps and an efficient veterinary service. The Army of the United States is, I think, the only one belonging to any of the civilized countries of the world which has not such a service organized upon a basis which will insure good men and a good, efficient service.

Now, our association feels that this provision, as it was passed by the Senate, meets the needs of the case, and it would like very much, if this committee could see its way clear, and thinks it advisable to do so, that this provision should be reported just as it passed the Senate, for the reason that if any changes are made there is a possibility not only that there may be nothing gained for the veterinary service at this session, but that we may get something that is not as good as the provisions which were passed by the Senate.

Our association has always held that there should be an organized veterinary corps, with a head to it. That is to say, we think that the veterinarians scattered through the cavalry regiments of the Army, with no coördination between them, with no expert director, cannot give really efficient service. The veterinarians who are provided for, and who are likely to be provided for, to go with the regiments must necessarily be men of a somewhat lower grade than the average members of the profession. That is to say, it is impossible to get men who have had experience, and who have been successful veterinarians, to take positions for $75 or $125 a month in the Army, even if they had rank; because that class of men are making from $2500 to $10,000 per year outside of the Army. But we feel that with a corps organization these men would be all right if there were at the head of them an experienced and successful veterinarian, and if a salary could be given which would command that kind of a man. Such a chief, whatever he might be called, would be able to give directions for the veterinary service; he would be able to see that the men under him were performing their duties; he would be able to see that they had proper supplies; and, in fact, he would be able to raise these men, approximately, to his level.

It would be just as it is in the meat-inspection service in the Department of Agriculture, of which I have the honor to be the head.

Now, the Government could not maintain a respectable meat-inspection service if it employed $900 or $1500 men and placed these men by themselves, isolated, without any coördination between them, one at each packing-house of the country. It takes all of my time and attention to see that the men in the different places have instructions, to see that they make their reports, to see that they are carrying on their work properly, and to hold them responsible for it. It appears to me, and it appears to the profession, that such an organization is necessary in the Army in order to get the proper service out of the men, in order to see that they are performing their duties uniformly and harmoniously throughout the different regiments and in the different places where they are placed, and in order to see that they are all kept up to the times in their work.

Those are the principal reasons why the veterinarians desire a veterinary corps.

The Chairman: Gentlemen, have you any questions to ask?

Mr. Marsh: Doctor, how many veterinary surgeons are there under your jurisdiction as the head of this service?

Dr. Salmon: In the inspection service of the Department of Agriculture?

Mr. Marsh: Yes.

Dr. Salmon: About 200.

Mr. Marsh: Are they commissioned?

Dr. Salmon: They are not commissioned, no, sir. They are not in the military organization.

Mr. Marsh: They are employés?

Dr. Salmon: They are employés, yes, sir; but they have an organization. They all report to me. They all get their instructions from me.

Mr. Marsh: To whom do you report?

Dr. Salmon: I report to the Secretary of Agriculture.[1]

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[1] So should the chief veterinarian of the Army report to the Secretary of War, as he does in the armies of other countries.

Mr. Marsh: So far, there are, I think, eleven departments of the War Department, are there not?

Dr. Salmon: I do not know how many there are.

Mr. Marsh: And this is a proposition to make a new one?

Dr. Salmon: It is a proposition to organize the veterinarians into a corps; yes, sir,

Mr. Marsh: A staff corps?

Dr. Salmon: Yes, sir.

Mr. Marsh: There are now, I think, eleven staff corps in the Army, each independent of the other, and each reporting directly to the Secretary of War. This is a proposition to create another staff corps?

Dr. Salmon: Yes, sir.

Mr. Marsh: Some gentlemen desire to avoid that and at the same time provide for an efficient veterinarian service in the Army. Now, do you know of a way by which an efficient veterinary service can be organized in the Army without establishing a separate, distinct, and independent veterinary corps?

Dr. Salmon: No, sir; I have never discovered any way in which it can be done, and I do not think any other country has, because in every army of Europe, certainly in the armies of all the principal countries, there is a separate, independent veterinarian corps.

Mr. Marsh: Does the veterinarian corps report to the secretary of war, the head officer of the war department of the army?

Dr. Salmon: I think in most countries they report to the secretary of war. At any rate, I understand that in all those cases the veterinary organization is the same as the medical organization. The two services are practically parallel.

Mr. Marsh: We have now in the service of the War Department eleven staffs—the Adjutant-General, the Inspector-General, the Corps of Engineers, the Ordnance Department, the Quartermaster's Department, the Commissary Department, the Judge-Advocate's Department, the Signal Corps Department, the Record and Pension Office Department, the Pay Department, and the Medical Department. There is a feeling among some that those departments ought to be reduced in number instead of increased. Is there any one of the departments under which this service could be placed without increasing the number of staff departments?

Dr. Salmon: I do not know about that. The veterinarians would prefer to have the bill passed as it passed the Senate; and then when the Army reorganization bill comes up (as I understand there will be an Army reorganization bill next session), they will be willing to accept any organization which is applied to the Army as a whole. I think it would be quite important and advisable to have a similar organization for the different corps of the Army, and have them report somewhat in the same way; and then, if it is deemed best to change the organization in that respect, I do not think there would be any objection at all.

What we are most anxious for is to get some recognition for the veterinarians now, and get a service established on some kind of an efficient basis. I do not think it is material to the veterinarians whether the head of this corps reports to the Secretary of War or to some other officer, so long as they have a corps with a head to it—somebody who can give expert directions to the corps and give expert advice to the Secretary of War.

Mr. Marsh: Would you have the members of this corps subject to the orders of the head of the corps, as, for instance, the surgeons in the Army are subject to the orders of the medical corps—ordered here and there, attached to this command next month and to another command three months hence, and changed around from one place to another—instead of allowing them to be permanently attached to the regiments which have horses?

Dr. Salmon: I think that would be a matter of War Department detail, and a detail of administration upon which I should not care to express any opinion. I have not been in the service, and I do not know what would be best in that case.

Mr. Marsh: Under the present system, the Surgeon-General orders Surgeon So-and-so to Fort Worth, Tex., to-morrow, and orders the surgeon already there to some other place, and is continually changing them around from one place to another. They are on duty in the west first in one department and then in another, so that they are not with any degree of permanence attached to any one command. Under the present bill the head of this veterinary corps would have that very power. Do you think that would be a good condition of things?

Dr. Salmon: Well, I should think that if it were best for the medical department, it would be for the veterinary department; although, as I say, I have not had experience in the Army, and I should not care to express an opinion further than that. If it were proved by practice to be the best plan for the management of the medical department of the Army, I do not see why it should not be for the veterinary department; because the services are, in my opinion, parallel and comparable in every respect. Some one certainly should have the authority to take a veterinarian, in case of an emergency, from one regiment and put him in another, or to detail him to any service that might be necessary.

Mr. Marsh: That power exists now in the Secretary of War.

Dr. Salmon: Yes. I suppose the idea of the bill is to relieve the Secretary of War from details of that character.

Mr. Marsh: In other words, to take them out of his hands?

Dr. Salmon: No, sir; he would direct the chief of the veterinary corps, just as he directs the chief of the other corps.

The Chairman: As a matter of administration, the Secretary of War has control of the whole thing now?

Dr. Salmon: Yes, sir.

The Chairman: Of the Medical Corps and all other corps?

Dr. Salmon: Yes.

The Chairman: And he would have under this bill?

Mr. Marsh: Theoretically he has, and practically he has not.

The Chairman: I think he has absolute control, but he does not want to meddle with the matter.

Mr. Marsh: He has the power, but practically does not use it. The heads of departments do it.

Dr. Salmon: I know that the head of the Department of Agriculture prefers to have me take such details in the Bureau of Animal Industry and manage them, unless some special case comes up, a case involving the policy of the Department. In such cases, of course, I always go to the Secretary of Agriculture. So I should suppose the chief of a corps of this kind would always go to the Secretary in case there were a question of policy involved.

In regard to the mere details of stationing men at different points, and determining whether they are needed or not, and giving them veterinary instructions, I should suppose the Secretary of War would desire to be relieved of all such details.

The Chairman: Are there any other questions? If not, that is all, Doctor.

Dr. Salmon: I would like to add, if you please, Mr. Chairman, that there are some reasons why there should be veterinary advice for the War Department here in Washington. For instance, in conducting the examination for veterinarians in the past, and those which have been held recently, an expert has been detailed from the Bureau of Animal Industry to draw up the examination papers, and to inspect the papers after the examinations were held. I presume there are some questions of that kind constantly coming up in the War Department here which require veterinary advice, and the Secretary of War could apply to the head of the corps of this kind for expert advice at any time.

Statement of Col. Rush S. Huidekoper.

The Chairman: Colonel Huidekoper, the bill which has passed the Senate, establishing a veterinary corps, is now before this committee; and as you are something of an expert in the line of veterinary science, and have taken a good deal of interest in the consideration of this question, the committee would be glad to hear from you in regard to your views as to the advisability of passing the bill, changing it, amending it, enlarging it, or contracting it.

Colonel Huidekoper: Mr. Chairman, if you will allow me for just a moment, I will take up a very brief matter of history at the start.

In regard to veterinary medicine, this country is a full century behind all the European countries, from an agricultural standpoint. While all the countries in Europe started schools of veterinary medicine a century ago, most of them at the outset attached them to the ministry of war, that of Austria still being attached to that department, as was, originally, that of Italy; but to-day the schools of Italy and France are attached to the ministry of agriculture.

It was not until pleuro-pneumonia came to this country and increased in the large stock yards and dairy farms of Brooklyn, Long Island, and New York, and extended over into Pennsylvania and Maryland, in the late sixties and seventies, that any great attention was called to the need of Government veterinarians. There were so few of them here that the first general inspection of the condition of contagious pleuro-pneumonia and other diseases of animals required bringing Professor Gamgee, an Englishman, to this country for that purpose.

It was about that time, or later, when the pleuro-pneumonia spread on to Chicago and into Kentucky, that we saw the necessity for properly educated men of a class different from those we had in this country. We had a few men who had come from foreign schools; we had a few hundred men (among them some of the best we had) who were self-educated; but they were individuals, and exceptions.

About that time we saw the necessity, from an agricultural stand-point, of better educated men. Two large land-owners and farmers in Pennsylvania, together with Mr. J. B. Lippincott, the book publisher, of Philadelphia, who was president of the Humane Society of that city, wished, from a humanitarian point of view, to establish a school for this purpose, and they erected a building in the University of Pennsylvania. I was at that time very much interested in animals, while practising medicine, and I spent a couple of years abroad looking the subject up, as a result of which this school was established on a basis equal to that of the medical school. The same scientific education was given, and the same elementary education (covering chemistry, physiology, and anatomy) as is given in a medical school, together with a veterinary education equal to that given by the schools of Europe.

Almost at the same time Harvard University established such a school, and later New York State gave some $400,000 to Cornell University, at Ithaca, for the establishment of a school on the same basis. These steps have forced smaller private schools throughout the country to come up to a three-year standard of education, and it is those schools which have furnished the men who are now employed by the Bureau of Animal Industry, as well as the better class of veterinarians throughout the country.

A few years after the establishment of the school at the University of Pennsylvania General Sheridan, who had just returned from his long inspection of the armies of Europe (you remember he made a long visit in Europe, looking over the armies there), happened to be in Philadelphia, became interested in this subject, and invited me down here to Washington to go over the subject with him, as he had seen the veterinary service of the armies of Europe. At that time Col. Sanford Kellogg and I drafted a bill or an outline for an organization modelled after European organizations, which General Sheridan corrected, and expected to have recommended at the next session of Congress, when his death prevented that being done. General Schofield the following year took far less interest in the matter than General Sheridan had taken, and, as you know, you have for years had before this committee some feeble attempts at legislative improvement of the veterinarians in the Army until last year, when more active steps were taken.

The present bill provides for a smaller corps than that wished for by General Sheridan. Last winter, when the Army bill, known as the Hull bill, was in the House here, I happened to be in Washington and in consultation with Dr. Salmon, and we took up the subject again and carried it to the President, by whom it was referred to the Secretary of War, who told me to return in twenty-four hours. At that time I placed in his hands the data regarding European armies, and the condition of the veterinary service in our own Army; and at the end of twenty-four hours Secretary Alger indorsed an amendment to be submitted to the Senate, which was practically the same as that which we are asking this year. As the provisional bill took the place of the regular bill, no action was taken on that amendment, and our association returned again this year with the same amendment, calling for the establishment of an organized service.

The present condition of the veterinarians employed in the Army is that of a mere civilian employé. You will notice that the pay of veterinarians of the second class is $75 a month, with the allowances of a sergeant-major, which allowances include clothing and rations. A sergeant-major can get commutation of rations; and you will remember that when you passed the appropriation bill a few weeks ago it required a proviso for commutation of clothing of $3.75 a month to these men, because while they have the allowances of a sergeant-major they do not wear a uniform, and therefore the allowance of clothing was useless to them, and yet there was no provision for commuting their clothing. The Commissary-General, at about the same time, had to issue a similar order for the commutation of rations.

Again, the Quartermaster's Department employs an irregular number of men—some twenty or thirty—who were called in for ordinary, small services. They, again, are mere civilians, under a quartermaster, reporting to no one except the officer to whom they are directly assigned for duty, and for services which are purely of a practical nature.

The services performed by the veterinary surgeon employed by our Army to-day consist in his being called in to treat sickness after it occurs, to treat lameness after it occurs, and to do small detail duty. He does not perform any of the functions which exist in foreign armies, and which form the principal part of the service of those armies. The War Department in its examinations for promotion to the staff departments of the Army gives one number out of thirty for hippology, and yet the officers have had no instruction in it beyond their practical experience. As our officers leave West Point to-day, young cadets come out as second lieutenants, to take command of a troop of cavalry or a light battery of artillery, the senior officers having been promoted or placed in command of larger bodies of men, and unless these young men have been horsemen, or the sons of horsemen, before going to West Point, they know nothing about a horse, his shoeing or his stable care; they have had no instructions of any kind in hippology. In every military school in Europe there is a thorough course of instruction to the cadets and the younger officers on the conformation of the horse, the anatomy of the foot, shoeing, stable hygiene, grooming, the character of forage, the character of oats and of hay, which is as much instruction, both theoretical and practical, as can be given to a layman for the purpose of making him a good horseman. It is, in reality, such a course of instruction as is followed by many a civilian who owns a large stock farm.

At our military schools at Riley and Leavenworth there is some slight instruction given, but nothing which nearly equals the instruction which is given in every school in Europe. There the farriers, the horseshoers, and the first sergeants receive instructions at the military schools from a competent veterinarian on those same subjects—stable hygiene, grooming, washing, and cleaning the horse's sheath, the anatomy of the foot, shoeing, packing with saddle or pack, the points of bearing of a harness, and so forth, so much as can be given to make them competent men, and also instruction in the treatment of ordinary diseases.

Take the French army as an example. In that army every first sergeant, and horseshoer, and farrier of a troop is capable of doing about the same work that we ask to-day of the veterinarians employed in the Army. They cannot have a large number of veterinary surgeons in every regiment. They have two to a regiment to do those duties which the regimental commanders require of them, and besides what they do themselves to see that the other men perform those details of work which belong to the practice of veterinary medicine.

When a troop leaves, every troop carries one pack-horse, with a small outfit of instruments and medicines, and instruments for immediate ordinary use by the blacksmith and farrier, far better than we supply in our Army for the use of the veterinarians. As I will show you by the tables, the quartermaster furnishes to the veterinary surgeon of a French regiment enough supplies for all ordinary emergencies; and a man who has received a proper amount of training is able to supervise the work of the other men, to look after the general hygienic condition of the stables, to act as an aide to the colonel of the regiment, and to make such a special inspection as belongs to him; and has, in addition, time for the inspection of the animals that are to be slaughtered for food for the regiment. I am advised by all with whom I have consulted—General Miles, General Brooke, General Merritt, General Wilson, the Quartermaster-General, the Commandant at West Point—that such a course of instruction should be inaugurated at West Point, Fort Riley, and Fort Leavenworth the instant we can get the men for it.

On the question of boards of purchase let me say this: a horseman is born; it comes natural to him. Some men are naturally horsemen, and some men will never be horsemen, no matter how much they study. An old officer, a cavalry or an artillery officer, who has handled horses, or a quartermaster who has a great deal to do with the handling of horses and mules, knows what a good draft animal is. An old artilleryman knows what character of animal, as to conformation and quality, he wants for an artillery horse, or what is wanted for hauling ambulances in the medical department, and a cavalry officer what class of saddle horse is wanted for the cavalry; and these men are perhaps the best judges, just as a good horse-dealer is often the best judge of a horse that exists. And these men are the proper ones to purchase horses in large numbers, but they are not experts on the details of soundness. If an apparently sound horse is bought who has had one or two attacks of "moon-blindness," and two or three months afterward he goes blind on their hands, it shows the necessity for some other system of purchase. Take the matter of defects of a hock or of a pastern of the forefoot; such things look well enough in the general conformation of the animal, but an expert who knows every bone of the joint can run his hands over them and say at once whether a spavin is started, or will come out, or whether a ringbone is starting in the forefoot. It requires men of that class to take a lot of feet with more or less defects and determine whether they are defects of shoeing or are pathological conditions which will become permanent and end in uselessness.

The veterinary member of a board of purchase is simply an auxiliary member. The officer, the cavalry or artillery officer, is the man who knows the character and quality of the horse he wants purchased; but the veterinarian attached to the board is the man who can best determine its physical condition.

For the last seven years the Government of France has kept in this country a board of five officers, consisting of three line officers and two veterinary surgeons, for the purpose of purchasing horses. They have been all over Ohio, Indiana, and throughout the entire West, and they have been here for seven years. During that period Germany has had one or two boards here for some time. During the entire year previous to the American-Spanish war Spain had in the United States a board of three officers, two line officers and one veterinary surgeon, purchasing mules for Cuba; and our own animals likewise should be purchased by men who are competent to know what a good horse is, and who can determine that the animals selected have no internal defects.

There are many internal diseases, such as heart disease or lung disease, for which every horse ought to be examined. Many a horse is apparently good through ordinary tests and exercises, until he is put to hard work——

The Chairman: I doubt if we have time for this whole description, Colonel.

Colonel Huidekoper: I am practically through.

The Chairman: What we want to get at is the question of organization.

Colonel Huidekoper: Now, the question of an effective organization is a business proposition. It is identical with the case of anyone who has a large farm with a number of buildings on it, or any other business where twenty, thirty, or fifty workmen are employed, and the work has to be more or less harmonious. A man in such a business employs a foreman to look after the different matters, and see that the work is well done, unless he can look after it himself. I cannot suggest any other plan for the accomplishment of this object than such an organization as exists in Europe, where the veterinarians are given a separate corps. One thing which seems to be a good deal of a bugbear, which has been used by the few opponents of this plan, is this very matter of a separate bureau, which, from a business point of view, is nothing but an organization to insure effective work. That is instanced by the fact that one of the last bureaus, that of Pension and Records, could have done nothing without a separate head.

As you will see, this bill has been so drawn as to bring out men absolutely by competitive examination. From the time of the appointment of the first twenty to supply the ten regiments of cavalry, you will see that the promotion to the next grade, that of first lieutenant, is to be after a competitive, satisfactory examination. There is absolutely no question of appointment except on the merits of the men, and that fact gives them something to work for. That would give ten competent men for the Light Artillery, the Quartermaster's Department, and for the supervision of the inspection of meat for the Commissary Department.

Again, at the end of three years, four of these veterinarians are, by "competitive, satisfactory examination," to be selected from the ten assistant veterinarians, and given the rank, pay, and allowances of a captain of cavalry. These men would then be competent, I believe, to go to West Point, Fort Riley, or Fort Leavenworth as teachers, or to do expert work where required.

Mr. Marsh: Let me ask you there, Colonel, whether you would have the veterinarians examine the meat furnished by the Commissary Department, or whether you would have the surgeons of the Army examine it? Do you understand that to be one of the duties of a veterinarian?

Colonel Huidenkoper: It is in all the European armies.

Mr. Marsh: Is that what you want introduced into this Army?

Colonel Huidekoper: At a future time; yes, sir.

Mr. Marsh: That the veterinarians shall examine the meat which is dealt out to the men, or that the surgeons shall do it?

Colonel Huidekoper: The examination of live stock and quartered meat belongs properly to the veterinarian as an expert. He is the one who has studied the diseases to which the animals are subject, and is a better expert in regard to them than a medical can be.[1]

(To be continued.)

ANOTHER FIELD OF USEFULNESS.

THE *Journal* has watched with much pleasure and deep interest the valuable work done by members of the veterinary profession among the sister profession of human medicine. In Washington, Minnesota, Michigan, Pennsylvania, and other States veterinarians have entered the conventions of medical men to discuss sanitary problems, and have awakened a deeper interest in certain aspects of our own work. Medical men of years' standing, graduates of the older classes, and many of the graduates of to-day, have been sent forth to practise totally ignorant of the identity of a number of diseases in human and comparative pathology and their mode of propagation, development, and perpetuation. To enlighten medical men on these points is to interest them in all well-laid plans for the control of many infectious and contagious diseases, and is a work of untold value, and veterinarians should be alert and eager to disseminate knowledge in such channels, as it is sure to come back in a broader, more substantial recognition of our field of usefulness. The need of general knowledge and the teaching of food-inspection to medical students will promote a radical change in this field of our work, and we are hopeful of an early day's stand of all medical schools in making this important field of research a part of the curriculum. When medical men are better informed and their interest awakened, there will follow a more rapid education of the people and preventive medicine along veterinary sanitary lines, meat- and milk-inspection, etc., will receive an impetus of much import.

Joint-meetings of those engaged in human and comparative medicine are of great value. Veterinarians, becoming members of medical organizations, open up a wide field of usefulness. Veterinarians on State and municipal boards of health find golden opportunities for valuable work, and we urge our colleagues to join heartily in this movement.

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[1] In Europe all animal food for the soldiers is inspected on the hoof and when dressed by the army veterinarians before it is issued as rations. Our army depends upon a chance of the meat food coming from a packing-house which employs veterinarians of the Bureau of Animal Industry. There is not to-day a qualified meat-inspector in the United States.

A commissary or other officer may know the difference between spoiled meat and fresh, but he, and even the medical officer, is not familiar with the tape-worm, the trichinæ, the lesions of tuberculosis or other diseases as they occur in animals, rendering them unfit for food.—*Troy Times, April* 18, 1900.

Frequent contributions to medical journals on topics of mutual interest are sure to attract deserved attention and thus bring incalculable good to the progress of preventive medicine, a boon to suffering humanity, and a rich reward to those engaged in the field of comparative medicine.

MINNESOTA'S LOSS, IOWA'S GAIN.

THE calling of Dr. M. H. Reynolds, of Minnesota, to the deanship of the veterinary department at Ames, Iowa, is a serious loss to Minnesota, a great gain to Iowa.

In no State of our Union has there been more valuable work done in the past five years than has been accomplished in Minnesota under the direction of Dr. Reynolds. His strong position on the State Board of Health and the dissemination of knowledge along veterinary sanitary lines have brought excellent results and awakened a lasting interest in preventive medicine. The losses that have been prevented and the added knowledge gained in control work, the aroused interest all over the State, the excellent work done at the college station, in the agricultural college, through bulletins, the press, and every other available channel are of so wide-spreading interest, of such vast importance, that we cannot believe the people of Minnesota will relinquish his connection with their State work without a strong effort and plea to retain him.

Iowa's gain will be a great one, in that he brings to the college work a cultured mind, one strong in discipline, tireless in work, broad and conservative in all his teachings and doings, and adding to the college a strength that will enlarge its sphere of usefulness, enrich its students, and save through many channels great losses to the State.

We are more than sorry to see Dr. Reynolds leave Minnesota at a time when the fruits of his well-laid plans are about to be garnered, and when his directing skill is of the greatest import.

We congratulate the State College of Iowa on obtaining so valuable an addition to her teaching-staff; the State in general in having within her borders another well-trained expert in

State veterinary control work, and the college so capable and strong a teacher.

MICHIGAN WAYS.

MICROSCOPES seem to tell varying tales according to the eye that peers through the lens. Anthrax and braxy, in sheep, each finds its advocates and devotees in the reports of the recent losses occuring in this State.

The pathway of veterinary legislation in Michigan was not strewn with roses, but was rather a bed of thorns.

President Jopling, of the Michigan State Association, was active in the rôle of secretary for several years, and only illness in his immediate family has prevented more aggressive work on his part in the higher office of president.

Governor Pingree does not seem to be in accord with a large number of the profession in Michigan.

Dean Conkey, of the Grand Rapids Veterinary College, is ever ready to defend this college against all comers.

From Michigan came strong protests against our former army-bill, that denied eligibility to army veterinary service of graduates of foreign schools.

The presence in the "Wolverine State" of so many graduates of Canadian colleges seems to have surrounded the settlement of many professional questions with added difficulties.

As there seems to be many of the profession in the State in favor of a three-years college clause in fixing the status of professional requirements for veterinary practice, and the Grand Rapids College claims to have demanded the same, there would seem no good reason for not amending the law in that direction at the next session of the State legislature.

Dr. W. W. Thorburn, of the Michigan State Veterinary Board, is a graduate of the Ontario Veterinary College, class of 1883.

The exactions of the entrance requirements of the Veterinary Department of the Detroit College of Medicine were such as to save it from the responsibility and parentage of unprepared graduates of veterinary medicine, and will add greatly to the honor of those who directed its affairs.

NECROLOGY.

John A. Pearson, V.M.D. At Bryn Mawr, Pa., August 4, 1900, Dr. Pearson, a graduate of the Veterinary Department of the University of Pennsylvania, met a sad and distressing death.

While endeavoring to control and teach an unmanageable horse to be fearless of steam he was thrown down an embankment from his cart and the horse followed, rolling upon him, injuring him so badly that he lived but a few hours.

Dr. Pearson was formerly a resident and later a practitioner of Kansas. For several years he had been in Philadelphia, where he gave the most of his time to handling and training horses for the saddle and driving. He was but thirty-three years old, and leaves a wife.

A. V. M. A.

PROPOSED AMENDMENT TO CONSTITUTION AND BY-LAWS.

Whereas, The progress and development of veterinary medicine in America has been slow and arduous; struggling through its infancy without the governmental protection which fosters it in older countries; hampered by the disposition of a large portion of the community toward quackery, home remedies, and patent medicines; impeded by the mercenary motives of many who have sacrificed professional reputation to business success; and

Whereas, The growth of our own veterinary association (until within a few years) has been confined to a limited area in the United States, and has remained somewhat conservative and restricted within itself, neither letting the public know its strength nor the profession know its full value; and

Whereas, There are still in the United States a number of reputable men and worthy practitioners, who by force of circumstances have not joined our body, but who by their scientific attainments and valuable veterinary services would add value to our association by becoming members;

Therefore, We do offer for consideration the following amendments to the constitution and by-laws of the American Veterinary Medical Association:

Chapter VI., Article I. In the second paragraph, after the words "This shall go into effect January 1, 1893," erase the remainder of the paragraph to the words "year 1892" and insert the following: Until and including the executive session of the annual meeting of this Association in 1902, shall be eligible for membership in this Association, non-graduate veterinarians and veterinary graduates of two-year colleges under the following conditions:

1. The applicant shall present with his application blank a certificate signed by the President and Secretary of the State or local veterinary association of the community in which he practices, stating that he is a member in good standing of such association ; or

2. The applicant shall have on his application blank the endorsement of five members of the American Veterinary Medical Association, of whom two at least shall be practitioners of the State of residence of the applicant;

And the provisions of this amendment shall cease at the close of the annual meeting in 1902.

[Signed] RUSH S. HUIDEKOPER,
AUSTIN PETERS,
S. BRENTON.

VETERINARIANS in the vicinity of Philadelphia, Baltimore, and Washington will find the following plan for reaching Detroit convenient and delightful, as well as affording them very favorable rates of travel: On Saturday, September 1st the Reading Railroad will conduct a ten days' excursion to Niagara Falls and return for the sum of ten dollars. Veterinarians taking advantage of this trip could reach Detroit from Niagara Falls or Buffalo by rail or lake at very reasonable rates, or take advantage of the one and one-third rates given from either of these points to Detroit, returning the same way within the time allowed by the ten days' excursion. They could at the same time spend one day (Monday, the 3d) at the Industrial Exposition at Toronto, which will be well worth a visit, going from Toronto direct to Detroit and return to Niagara Falls or Buffalo and continue their homeward journey from that point.

The hot weather of this season suggests that the annual meeting for 1901 should be at the seashore. New Jersey has not had an Association meeting yet. It has within the last year consolidated the three veterinary associations into one—the largest State association in the country. The recent medical congress proved what a delightful place an ocean pier is for a meeting. Atlantic City offers, with all its other amusements, the sandy beach, fishing and bathing in the ocean, which would be a recreation for the families as well as for the members. Let us wash in the surf and start the new century of veterinary medicine at Atlantic City.

Prof. Andrew Smith, of Toronto, President of Canada's great Exposition and Industrial Fair, hopes that the veterinarians will include a visit to Toronto in their route to the annual meeting of the A. V. M. A. at Detroit. From August 27th to September 3d will include a large portion of the exhibition of horses, cattle, etc., and first day of the international dogshow, and much of the racing and contests of high-jumping for hunters.

The Detroit meeting will have much interest added and fresh results of extensive investigations on the subject of "Rabies." In addition to the paper already on the programme by Dr. D. S. White, of Columbus, O., another important contribution on this subject is announced from the busy pen of Dr. D. E. Salmon, chief of the Bureau of Animal Industry, which promises to clear up much of the clouded pathology and nature of this disease.

Dr. Andrew Smith, of Toronto, who, as a Government official of the British Empire, is familiar with the army veterinary service of Great Britain and Canada, has written a note of advice to all the graduates of his school inviting their attention to the importance of aiding in the legislation for the army veterinary bill.

Vice-President Winchester, of Lawrence, Mass., always arranges his summer holiday to include the annual meeting of the A.V. M. A. He will present an interesting paper at Detroit.

Secretary Ray J. Stanclift, of Georgia, has been appointed veterinarian of the Eighth U. S. Cavalry, and after a few days' visit to Buffalo, has gone to Cuba, where he will be stationed.

Dr. Joseph Plaskett, of Nashville, Tenn., and Dr. B. D. Pierce, of Springfield, Mass., are serving as veterinarians with the British troops in South Africa. Dr. George R. White, of Nashville, and Dr. Austin Peters, of Boston, have taken their places as State secretaries.

Two more subjects are announced for the Detroit meeting: "Exercises in Veterinary Dentistry," by Dr. Robert W. Ellis, and "The Clinical Aspect of the Sale-stable Fever of Horses," by Dr. A. H. Baker.

SOCIETY PROCEEDINGS.

NIAGARA AND ORLEANS COUNTY VETERINARY MEDICAL SOCIETY.

This Society convened at the office of the Secretary, Lockport, N. Y., August 11th, at 2 P.M. The President, Dr. W. E. Stocking, called the meeting to order. On roll-call the following officers responded: Drs. W. E. Stocking, Medina, N. Y.; M. D. Williams, Middleport, N. Y.; John Liddle, West Shelby, N. Y.; Wm. Hunter, Niagara Falls, N. Y.; J. O. Moore, Wilson, N. Y., and Anderson Crowforth, Lockport, N. Y.

Several complaints were made against illegal practising. They were turned over to the Prosecuting Committee, with power. Other very important business pertaining to the profession generally was disposed of. Drs. Stocking and Crowforth presented two interesting papers, which drew forth a lively discussion. The meeting adjourned. Medina will be the next place of meeting, in February, 1901.

ANDERSON CROWFORTH,
Secretary.

The American Public Health Association will meet in Indianapolis, Ind., October 22 to 26th, inclusive. "Animal Diseases and Animal Foods" will be the subject of discussion in the general meeting. In the meetings of the Section on Bacteriology and Chemistry the "Laboratory Work on Tuberculosis" and "Bacteriology of Milk in Its Sanitary Relations" will be fruitful themes of discussion.

COMMENCEMENT EXERCISES.

CHICAGO VETERINARY COLLEGE.

THE seventeenth annual commencement exercises were held on Tuesday, March 27th, at the College Auditorium. Numbers of friends of the graduating class were present. Prof. Joseph Hughes presided. The degree of M.D.C. was conferred upon the following gentlemen: A. W. Beveridge, Belle Centre, O.; T. W. Corkery, Urbana, Ill.; F. H. Davis, Ottawa, Ill.; H. A. Hela, Cokato, Minn.; J. J. Heldring, Amsterdam, Holland; J. Hill, Jr., North Platte, Neb.; H. Jensen, Ph.G., Weeping Water, Neb.; O. H. Leonhart, New Washington, O.; L. F. Miller, La Salle, Ill.; A. J. Roll, V.S., Natrona, Pa.; G. Sprenger, Hastings, Neb.; L. C. Tasche, Sheboygan, Wis.; A. M. Wray, Richmond, Ill.

Dr. H. Jensen, of Weeping Water, Neb., was awarded the gold meadal for the best general average in all branches. Dr. H. A. Hela, of Cokato, Minn., received the prize for Theory and Practice, consisting of a $25 case of instruments. Dr. F. H. Davis, of Ottawa, Ill., was presented with $25 worth of books on account of his standing highest in anatomy.

In conclusion, Prof. A. H. Baker made a few interesting remarks concerning the future prospects of the veterinarian, and wished the parting graduates a prosperous career.

PERSONALS.

Prof. R. S. Huidekoper, of Washington, D. C., with several nephews and nieces, spent two weeks in July camping along the historic Brandywine.

Dr. E. L. Cornman, of Gladwyne, Pa., of the class of 1900 of the Veterinary Department of the University of Pennsylvania, has recently become a member of Cassia Lodge, F. & A. M.

Dr. R. R. Dinwiddie, of Fayetteville, Ark., directs the work of the Laboratory of Zoöpathology and Bacteriology of the Arkansas Agricultural Experiment Station.

Veterinarian Edgar Odell, of New York City, is among the contributors to the *Rider and Driver* Mounted Police Medal and Hospital Fund.

Dr. W. W. Richards, of San Diego, Cal., is now Assistant City Veterinarian of Manila, Philippine Islands, attached to the City Board of Health.

Dr. David S. White, of the Veterinary Department of the Ohio State University, has been directed by the Board of Trustees to prepare plans for new buildings for the veterinary school.

Among Atlantic City's boardwalk visitors on Sunday were to be noted Drs. W. S. Kooker, of Philadelphia; James B. Rayner, of West Chester; B. M. Underhill, of Media, and A. T. Sellers, of Camden, N. J.

Dr. Charles F. Oat, of West Chester, Pa., is a lover of dogs, and finds life more pleasant on the farm when his morning slumbers are broken by the music of his canine friends.

Dr. L. A. Nolan, of Baltimore, Md., takes an active interest in Maryland politics. He says that State will return again in November to its first love and be found in the Democratic column.

"Ventilating a Stable" is the subject of a paper by Dr. E. A. A. Grange, in the *Rider and Driver* of August 11, 1900.

Drs. Pearson and Huidekoper had an interview recently with President McKinley in Washington, who expressed himself on the Army Bill, saying, "I am very much interested in this veterinary matter, and you have my best wishes for success."

Dr. M. H. Reynolds, of St. Anthony Park, Minn., who was recently called to the Deanship of the Veterinary Department of the Iowa Agricultural College, is a member of the Amerian Medical and Minnesota State Medical Association, and a frequent contributor to the programmes of these Associations.

Two elephants, one with a broken lumbar vertebra and the other with acute endocarditis, and sudden death from overwork, was the sore experience in the routine practice of Dr. Clement, of Baltimore, last month.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, spent some ten days of July in Kentucky. "Blue-grass" maidens were the primary attraction, and may account for the prolonged stay.

Dr. Austin Peters, of Boston, Mass., will act as temporary State Secretary of the American Veterinary Medical Association during the absence of State Secretary Pierce.

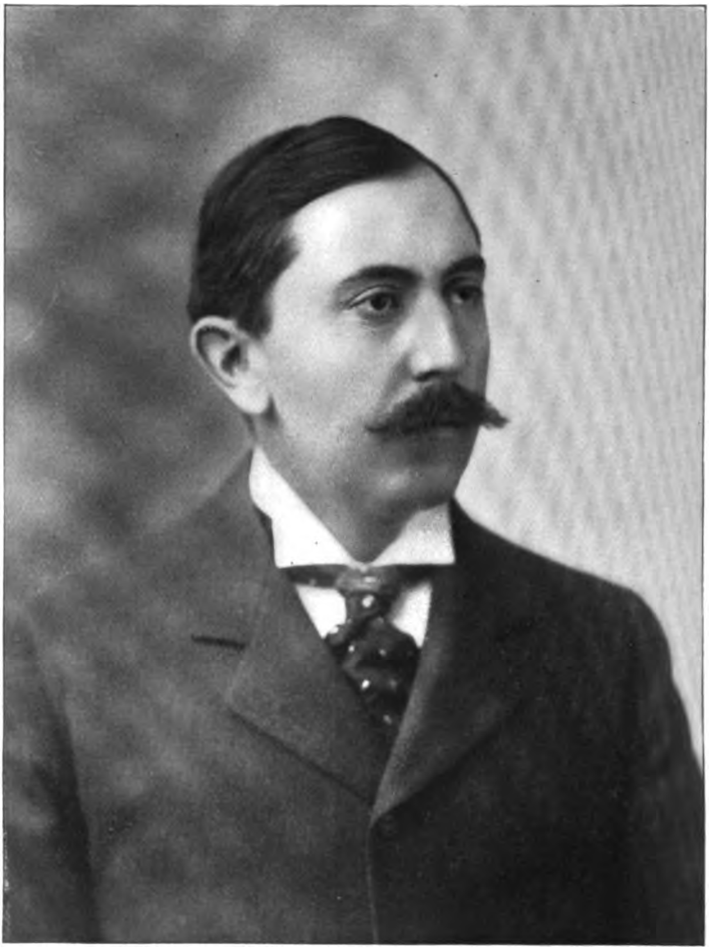
Dr. S. Stewart, of Kansas City, Kan., has proved a most efficient Secretary of the American Veterinary Medical Association, and continues to retain a very keen interest in the work.

Dr. William H. Kelly, of Albany, N. Y., fills the rôles of Secretary of the State Board of Veterinary Medical Examiners and Resident State Secretary of the American Veterinary Medical Association. He is also a very active member in legislative matters concerning his State Association.

Dr. R. S. Huidekoper will spend August in Winchester, Mass.

Dr. Frank Standen, of Philadelphia, whose health has been impaired for some time, is now journeying through Europe in search of relief.

Dr. E. M. Ranck, of Philadelphia, is among the cottagers at Anglesea, N. J., for the summer.



SENATOR KENNEY.

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RICHARD R. KENNEY,

U. S. Senator from Delaware.

REMARKS BY R. S. HUIDEKOPER.[1]

IT is a curious fact that several of the most important events in the foundation and development of veterinary medicine have been due to the interest and activity of soldiers, statesmen, and lawyers. Xenophon was the first to write of the care of the horse, especially its feet, of which he makes an important chapter in his *Anabasis.* Carlo Ruini, Senator of Bologna, who was one of the most advanced political leaders of Italy the latter half of the fifteenth century, wrote the first great book on the anatomy of the horse,[1] started the veterinary museum and library at the University of Bologna, now the largest and most complete in the world, and originated teaching on veterinary subjects.

Bourgelat, a French advocate, conceived the idea of and founded the first regular veterinary school—that at Lyons, in France—in 1762, and so interested the king and his mistress, Madame de Pompadour, in his work that he was called to Paris, given the old chateau with the menagerie near Vincennes, and founded the second school—that at Alfort—in 1765.

Here, within five years, came military officers sent by their governments in Austria, Prussia, and Denmark, to acquire the knowledge which was gaining such a reputation for its service to the army.

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[1] Extract from the Proceedings of the Thirty-seventh Annual Meeting of the American Veterinary Medical Association, Detroit, Mich., September, 1900.

[2] First edition, 1592, in folio, profusely illustrated with full-page wood engravings, richly ornamented. This work describes the valves of the heart and clearly indicated the circulation of the blood, thirty years before the time Harvey obtains credit for the discovery.

A few years ago we were called upon to mourn the death of the Marquis Ercolani, scientist, statesmen, the friend of Victor Emanuel and Garibaldi, who, after completing the task of the consolidation of Italy, ended his days in the laboratories and library of the Veterinary School of the University of Bologna, continuing his researches in comparative medicine, and completing the library founded by Ruini until it held, at the time of his death, a copy of every book which had been published on veterinary medicines.

Virchow and Paul Bert, statesmen and scientists, were ardent veterinary students.[1]

Dr. Benjamin Rush, statesman, patriot, and surgeon of American Revolutionary days, first proposed a veterinary school in America.[2]

In 1855 General George B. McClellan, then a captain of the United States Army, was sent to Europe to report on the European armies. In his report he gave a long description of the veterinary schools of Berlin and Vienna, and recommended that "the general features of their system might be followed in our service with great advantage."

General Sheridan's untimely death prevented the organization of the veterinary service in our army which he had in view.

It remained for Senator Kenney, of Delaware, to appreciate the public good which would come to the United States Government, its army and people, by such a service, and to devote the time, enthusiasm, and energy requisite for its accomplishment. He undertook the work at the end of the third session of the Fifty-fifth Congress, and, as we all know, succeeded in passing his bill in the Senate for the organization of a veterinary corps in the army in the first session of the Fifty-sixth Congress.[3]

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[1] Virchow, who was always the enthusiastic friend of the veterinarian, on a visit to Paris in the late '60s, found Paul Bert in his laboratory working over some physiological subject, and said: "My young friend, never let politics take you from your scientific work; it demands too much time." Some years after the Franco-Prussian War Paul Bert remarked, one morning at 7 o'clock, when I found him sitting at his desk in his shirt-sleeves, with a roll of bread and a glass of red wine and water for his breakfast, and his ante-room filled with politicians and students waiting for audience and advice, "And if Virchow had let politics alone in Germany I need not have taken them up in France." (Personal incident of the writer's.)

[2] In 1806 he recommended the establishment of such a school, on the models of those he had seen in Europe, at the University of Pennsylvania.

[3] Senator Kenney's bill for the establishment of an organized veterinary corps in the United States Army passed the United States Senate as "Section 14 of S. 4300," a bill for the efficiency of the army (known as the Army Organization Bill).

This Army Bill was under consideration for some ten days by the Military Committee of the House of Representatives, but action upon it has been delayed until the reconvening of Congress in December next.

SENATOR RICHARD ROLAND KENNEY was born in Sussex County, Delaware, September 9, 1856. He was graduated from the Laurel Academy, Delaware, in June, 1874, and then attended Hobart College, Geneva, New York. He read law under the tuition of the late Senator Willard Saulsbury at Dover, and was admitted to the Bar October 19, 1881, where he has practised law since that time. He was elected State Librarian of Delaware in January, 1879, and held that office for two terms. In 1880 he organized the First Regiment, National Guards of Delaware, and served in it as Captain, Company D, for seven years, when he was appointed Adjutant General of the State by Governor B. T. Biggs. He occupied this position for four years until January, 1891.

He was a delegate to the National Democratic Convention at Chicago in 1892, and in 1896 was appointed a member of the National Democratic Committee. He was again a delegate to the National Convention at Kansas City in 1900, and was chosen to succeed himself as a member of the National Committee. Senator Kenney was elected to the United States Senate January 19, 1897, to fill the vacancy caused by the Legislature of 1895 failing to elect a Senator to succeed the Hon. Anthony Higgins, whose term expired March 4, 1895. He took his seat February 5, 1897. This term of his service will expire March 3, 1901.

Senator Kenney, while a Democrat in politics, is broad-minded and unbiassed on all questions of national importance and in progressive legislation for the public good. He voted for the ratification of the treaty of peace with Spain, and has made most liberal speeches in the Senate concerning our new possessions, Puerto Rico and the Philippines.

He made a brilliant and logical speech on the legal aspects of the case of the appointment of Senator Quay from Pennsylvania, and voted for seating him. He advocated ardently and reported favorably from the Senate Post-Office Committee the bill to classify the Post-Office clerks. He secured with great labor the appropriations and works for the river and harbor improvements in the State of Delaware.

Senator Kenney is an indefatigable worker, and never neglects the smallest details, nor considers any of the trivial favors for which he is constantly called upon too small to look after and attend to. As a secretary in his office remarked, on clearing up the desks on the last day of Congress, "Well, we have passed every pension bill we had, and have not a bill unaccomplished which has not been unavoidably delayed in some one else's office."

Such is a brief sketch of Senator Kenney, in whose hands is the guidance of our army legislation. He combines the ability and the will to accomplish what has been done, and we owe to him a debt of gratitude. Those who know legislation in Washington know what a task it was.

We also owe sincere thanks to Senator Wolcott, of Colorado; Senators Frye and Hale, of Maine; Senator Gallinger, of New Hampshire; and to Senator Stewart, of Nevada, all of whom took active personal interest in the support of our bill.[1]

Dr. Hoskins addressed the chair.

MR. PRESIDENT AND GENTLEMEN: I know of no occasion in the history of American veterinary medicine when our profession has created so deep an obligation to any one person for valuable services rendered, or when we have owed so great a debt of gratitude as we do to-day to Senator Richard R. Kenney, of Delaware, who has so ably led our battle in army legislation for rank and recognition for our profession in this branch of our government; and I am in thorough accord with the sentiment so well expressed by Dr. Huidekoper in his record of the services rendered. I desire to propose a vote of thanks from this Association to Mr. Kenney, and offer that our Secretary be instructed to convey the same to him under the official signature of our officers.

This motion was seconded and unanimously adopted.

On motion of Dr. Austin Peters, of Boston, the following resolution was unanimously passed:

Resolved, That we offer our sincere and cordial thanks to Senator Wolcott, of Colorado, and the other Senators who so kindly took an interest in securing the passage of our veterinary bill.

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[1] The brilliant and forcible speeches of Senator Wolcott and others will be found in the Congressional Record of May 4, 1900.

The following Senators voted for the Veterinary Bill, though there were some fifteen more Senators who had promised their support, but were absent when the roll was called:

Allison,
Bacon,
Baker,
Chandler,
Clay,
Culberson,
Foster,
Frye,
Gallinger,
Gear,
Hale,
Hansbrough,
Kenney,
McComas,
McCumber,
McEnery,
Morgan,
Nelson,
Perkins,
Quarles,
Stewart,
Taliaferro,
Teller,
Turner,
Wolcott.

A PLEA FOR BROADER TENDENCIES IN VETERINARY INSTRUCTION.[1]

By Leonard Pearson, B.S., V.M.D.,
PHILADELPHIA, PA.

The past year has been one of great progress in our Association affairs and in the development of our profession. The schools are receiving more support and are improving. Laboratories for research work in comparative pathology are being improved and enlarged, and new ones have been established. Under the stimulus of increased demand for their services and higher rewards the veterinarians of the country have given more attention to their organizations, have strengthened them, and, by coöperation, advanced the status and the conditions governing their calling.

In so far as this applies to our own organization you will be told more by the Secretary—that vigilant, untiring officer who keeps in touch with all of the details of the work of this international society from year's end to year's end; planning, pleading, prodding as conditions require or as instructed by you. The Secretary's office has steadily grown in importance, and is now the great reservoir and mainspring of the official work of this organization. The amount of time and thought required to satisfactorily conduct the affairs of that office and the difficulties experienced in arranging for a meeting such as this, and in keeping up the correspondence with nearly four hundred members, can scarcely be appreciated by one who has not undertaken it. Do we compensate the Secretary sufficiently for the time he must take from his personal work and devote to our business? I believe that this question should be carefully considered.

Our organization is now stronger and its influences are broader and more potent than ever before. We will better appreciate the meaning of this if we recall some of the achievements of this body, as, for example, the success of its efforts in the direction of lengthening the courses of instruction in the veterinary schools. When this matter was taken up a few years ago but three veterinary colleges in the United States and one in Canada required three years' attendance. At this time there are but two colleges in this country and one in Canada that do not require three years' attendance, and this out of a total of sixteen. Moreover, the requirements for entrance are gradually being raised, and students better prepared for the study of the veterinary sciences are now being required and received. These great advances are in part a natural development, but there can be no doubt that they have been encouraged and hastened by this body.

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[1] The address of the President of the American Veterinary Medical Association, Detroit, Michigan, September 4, 1900.

Whatever change of sentiment there may be among the members of Congress and on the part of the public in regard to the proposition to confer the authority and dignity of rank upon veterinarians in the United States Army is due principally to a few members of this body working as members of special committees. Especial mention should be made of the faithful labors of Dr. D. E. Salmon and of Dr. R. S. Huidekoper. By the efforts of these gentlemen, aided most valiantly by the members of this Association and the veterinary profession at large, it was possible at the last session of Congress to make a greater advance in the matter of placing veterinary work in the army on a proper basis than has ever been possible before. The bill drafted by your committee has passed the Senate, has gained friends in the House of Representatives, and has secured the indorsement of the President. It now remains for us to continue to follow the leadership of our Committee on Army Legislation, to sustain and aid them in the continuation of their difficult work. If they shall fail this year to secure the enactment of this reform that the army needs so sorely we must not be discouraged, but continue the struggle until the military veterinarians are given commissions and are organized into a compact and serviceable corps, with a veterinarian at their head whose rank is in proportion to the magnitude and importance of the work he is required to control.

I believe that the veterinary profession of the United States is determined to have its dues in this matter, and is determined that the army shall have a veterinary equipment that will be a credit to this country. The ancient system now in vogue—that is the source of enormous losses to the tax-payers, that lessens the efficiency of the army and is an insult to the veterinary profession—must be supplanted, no matter how much time and effort are required to do it.

In the publication of veterinary literature this Association has always taken a prominent and leading part. The oldest veterinary periodical in this country was originally the journal of this Association. During recent years its annual proceedings have constituted most important contributions to our literature. These volumes reflect the thought, the attainments, the ideals and purposes of what is highest and best in our profession. It is fitting, therefore, that they they should appear in a form that is commensurate with all they represent.

In the encouragement and development of the public relation of veterinary work this Association has always taken a foremost position. This will be shown by reference to the resolutions adopted at our annual meetings. These resolutions have come to be looked upon as the authorized voice of the veterinary profession, and so it is important that they shall always be well considered, conservative, and safe.

The papers that have been read at the meetings of this Association and the discussions upon them have had the effect, in large measure, of solidifying and unifying the thought and efforts of veterinarians on questions of moment. The methods employed in controlling various infectious diseases and the organization of State Boards of Veterinary Medical Examiners are instances in point.

The development during the past decade of knowledge of disease and of effective methods of prevention and cure have been marvellous indeed. It is gratifying to consider that much of this advancement has been the work of comparative pathologists and of veterinarians. It is only quite recently that the advantages have been recognized that may be derived from the study of comparative pathology in relation to the development of the whole subject of disease, and especially to human diseases. In fact, scarcely any attention was paid to this subject until Bollinger explored the almost virgin field of animal pathology thirty years ago. Virchow and Birch-Hirschfeld also recognized the value of the broadening discipline and the new lights to be derived from the study of the diseases of animals. More recently attention has been forcibly drawn to this subject by the researches of Johne, Kitt, Nocard, Smith, Moore, and McFadyean. In bacteriology, a younger branch of pathology, students have not been bound by such rigid traditions, and so they have not drawn sharp lines between genera and confined their studies to the organisms that attack a single kind of animal. Many bacteriologists, following the example of the great leaders, Pasteur and Koch, have studied the bacterial diseases of useful animals.

The idea is gaining ground that disease must be studied as disease in the broadest sense possible, and not, as heretofore, as a morbid process confined to a part of the body of a single species of animal.

"Comparative pathology" already has a familiar sound, and many laboratories are being erected or equipped and enlarged to make special provision for this new development. This movement is evident not only in this country, but abroad as well, and notably in Germany. These laboratories are usually connected with medical schools or Government health departments. One result of this, it is hoped, will be to throw new light on many of the obscure points in the pathology of the diseases of animals and help to overcome the condition that Johne described in explaining why he did not finish his text-book on pathology that was announced ten years ago. He said: "The pathological institutes in human medicine are filled with young physicians who have sought and found in this field a subject for a thesis or are undertaking advanced work. This results, at least, in the accumulation of a plentiful amount of material that without too much labor can be sifted and worked over. Thus building-stones are made from which the master can erect a building. Of this, veterinary pathology has nothing. The teacher of veterinary pathology is not supplied with sufficient help, and has scarcely time to attend to the current work of his department, the post-mortems and courses and lectures, if he is thorough in them. There are no positions to strive for or other encouraging conditions to attract young veterinarians to provide building-stones for great text-books."

Since these words are true of the conditions in America even more than in Germany, we hail with joy any movement that promises to provide facilities for and to encourage workers in comparative pathology. In view, however, of the existence of these great laboratories and the numerons pressing demands on the public exchequer and the funds of universities, it will become more difficult to establish special laboratories for veterinary pathology.

But it is not at all likely that this development will fail to receive a warm and sympathetic welcome. We must not be content with this betterment, however, nor should we lightly fall into the error of thinking that this is all of the veterinary sciences. We must not allow the other essential veterinary sciences to be neglected and fail to develop in proportion to their fellows and their own innate importance.

If comparative pathology is taken up by laboratories usually conducted by physicians and principally for the purpose of throwing light on the diseases of man, and if our veterinary teachers must go to this source for their facts, we must not allow all of the veterinary sciences to be humanized in the same way and developed as side issues to subjects that are conceived to be more important.

It is evident that our veterinary schools and veterinary departments of universities must always stand on independent bases if they are to properly fulfil their function. It will never do for them to become subsidiary departments incidental to schools of medicine, for example. If any arguments are needed to support this contention they may be found in the vast importance to the nation of the interests that are protected and fostered by veterinarians and in the histories of veterinary schools in other countries.

First, veterinarians guard the greatest income-producing property in the United States. Live-stock husbandry is the most profitable branch of our agriculture; it feeds more people and furnishes more homes than any other branch of manufacturing commerce or trade. It furnishes material for exports amounting to more than $200,000,000 per annum. It represents an investment of more than $2,000,000,000. The success of our agricultural population, comprising 58 per cent. of the people of the country, depends on their horses, cattle, sheep, swine, and poultry more than on any other factor.

Moreover, the butchers, milk dealers, creameries, woollen mills, tanneries, shoe factories, hat factories, and numberless other smaller interests and industries depend on animals and animal products. The protection and development of such interests as these are worthy of the most earnest attention of statesmen, scientists, and educators.

Second, the experiment has been tried in Europe of establishing veterinary chairs in universities and attempting to provide veterinary courses without independent faculties and the complete equipment of a veterinary school. Such experiments at Halle, Leipsic, and Giessen have failed. The successful work of investigation and instruction in the veterinary sciences in Europe is done in separate veterinary schools, as at Berlin, Dresden, Hanover, Alfort, London, and Vienna. There are, perhaps, three seeming exceptions to this rule. In Berne the veterinary school has during the past year been made a department of the university, but its separate plant and faculty are preserved. In Copenhagen and Budapesth the veterinary schools are associated with schools of agriculture, but each has its special equipment and faculty, and this union appears to be advantageous to both institutions.

If the veterinary sciences are dominated by comparative pathology there is danger that the point of view of the veterinarian will become narrow, and that he will not be competent to apply to the best advantage the knowledge of comparative pathology that he possesses. This statement may at first seem paradoxical, but my thought is that it is necessary for a veterinarian to be thoroughly familiar with animals in health before he can treat them successfully *or economically* when they are diseased. It is necessary to know the breeds, values, foods, methods of rearing, using, etc., in order to be in a position to discover and remove causes of disease or advise appropriate treatment. This idea was illustrated to me by Professor Dieckerhoff, who said of a certain eminent physiologist, a professor in a veterinary school: "He could teach veterinary physiology better if he could ride"—that is, if this great scientist had possessed some familiarity with animals he could have extended and applied his profound knowledge beyond the walls of his laboratory and lecture hall to animals in the stable and pasture. There is as much in the application of principles as in propounding them. It is not enough to have a set of tools; one must know how to use them.

In spite of the prevailing popular impression, the veterinarian is more than a doctor of diseased and maimed beasts; and he is himself responsible for the narrow bounds that circumscribe his field of labor in the popular mind. In this country the title "doctor" does not commonly convey the impression of a learned man, but to the plain person it signifies one who doctors. Now, veterinarians have insisted upon the title of doctor, whether conferred upon them by their college or not, and the result has been that they are commonly regarded as men whose sole business is to doctor animals, and this is considered the single object and the end of their technical equipment.

In other countries veterinarians do not covet the title of doctor, and it results that they are not regarded as members of the least important branch of a noble profession, but stand on footing of their own.

Partly on account of the narrowing effect of a useless title, and partly through failure to realize the importance of the subject, veterinarians have not cultivated to the extent they deserve what might be called the physiological phases of animal husbandry. With his knowledge of comparative anatomy, physiology, chemistry, foods, and the predisposing and exciting causes of disease the veterinarian should be the natural expert on conformation, selection for special purposes, breeding, rearing, feeding, etc. He should also be thoroughly informed on stable construction and other practical questions related to the maintenance and utilization of animals.

As expert landscape gardeners, civil engineers, and architects are consulted on the problems within their professions, so should veterinarians be consulted on the problems within their profession covering all phases of animal husbandry. Before this can occur largely it will be necessary for the public to relinquish the idea that veterinarians are useful only to patch up decrepit animals or to check the spread of disease, however important this may be, and be educated to regard them as experts in animal husbandry—as animal engineers.

It is also necessary that our schools shall devote more attention to these subjects. At present our knowledge of some parts of them is almost purely empirical; it remains for veterinarians to formulate it and place it on a scientific basis, whence it may advance. Most of the accurate work that has been done in these lines has been done by veterinarians, beginning with the illustrious Bourgelat; but there is an enormous field that is still untouched.

This Association can do much to broaden the scope and practice of the veterinarian. It can encourage the preparation and reading of papers relating to the subjects that are usually grouped under the title "Animal Husbandry." It can appoint committees to report on special problems coming under this head. It can recommend the amplification, the deepening and broadening of instruction in zoötechnical and allied subjects in the veterinary schools. When all this is done the veterinary profession will be in more direct touch and in closer sympathy with the stockman, and cannot fail to be of more service to the live-stock industry and to itself profit by these more intimate bonds.

This thought must have been in the minds of those who planned and organized the federal Bureau of Animal Industry. It is fortunate that this bureau is established on broad lines; that it is not the bureau of comparative pathology or the bureau of veterinary police, but that its purpose is to improve the animal industry in all of its departments and relations, and that its organic law is broad enough to permit this.

In the same way, so far as an individual may, each veterinarian should extend his knowledge and his practice and become an expert in animal engineering.

In dwelling upon this as a legitimate and desirable field of effort I have not wished to appear antagonistic to any work the profession or this Association may now have in hand. It is all important and should all be strengthened. It is your high duty as the representative body of the veterinary profession of North America —as the Veterinary Senate—to point the way of advance and to strengthen the hands of the laborers in the field.

GRUBER'S REACTION IN HOG CHOLERA.[1]

By R. R. Dinwiddie, M.D., V.S.,
ARKANSAS AGRICULTURAL EXPERIMENT STATION, FAYETTEVILLE, ARK.

In selecting for discussion this subject of serum diagnosis—Gruber's or Widal's reaction—in hog cholera, I have been influenced perhaps less by the desire to communicate my own experiences than to elicit information from the more extensive experience of others. We are all, as investigators in veterinary pathology, necessarily interested in those contagious swine diseases known to the American farmer by the traditional name of "hog cholera," while some of us are now specially engaged, I believe, in their study. My own special studies in this direction are comparatively recent, but I have encountered almost at the outset a difficulty which I think must have been the experience of all engaged in such work, namely, the question of diagnosis between hog cholera properly so called—"swine pest," to use the European name—and "swine plague," and, it may be, other infectious diseases still unstudied.

Our uncertainty is not in all cases removed by the pathological-anatomical findings, nor even by the time-consuming bacteriological research.

Serum diagnosis, which in typhoid fever has been found of sufficient reliability for practical use, seems to offer a promise of aid in the study of these swine diseases. I do not know to what extent it has been used for this purpose, or whether this promise has in practice been fulfilled. I have noticed practically nothing on the matter in European literature, although I confess I have not as yet carefully looked over the reviews for this purpose. Some references to serum diagnosis in swine diseases—the only ones, in fact, which have come under my observation—are contained in the recent reports of the United States Agricultural Department. Dawson, of that department, some years ago made a communication in one of the Eastern medical journals of his demonstration of this reaction in the blood of the rabbit inoculated with hog cholera, and in the last annual report of the Bureau of Animal Industry describes the method of applying the test for diagnosis. From other brief references in these reports I infer that this method of diagnosis has been employed in the immunizing experiments in swine diseases carried on by these authors. It has probably been employed also by other Experiment Station workers now present, and from these I hope to hear in discussion something of their experience.

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[1] Presented at the Fourth Annual Meeting of the United States Experiment Stations Veterinary Medical Association, held at Detroit, Mich., September 4, 1900.

My own studies of this reaction in hog cholera have been almost confined to experimental animals—pigs, rabbits, and guinea-pigs—and have been merely incidental to some immunizing experiments on which I have been engaged.

From the notes of this work the subjoined data referring to the occurrence of this clumping reaction have been extracted:

I ought, first of all, to say something as to the method employed. Nearly all my tests have been made with dried blood. At first the strengths of the dilutions were merely estimated roughly, or rather guessed at; but it was soon found, in my hands at least, impossible to arrive at reliable results without some system by which these dilutions could be more accurately gauged. After some experimenting I finally adopted a method of measuring the volume of the blood samples which has proved entirely satisfactory and has been employed in all the tests referred to in this paper. This method I will demonstrate later if time permits.[1] Dilutions were made with sterile normal salt solution, and the specimens made ready for the microscope by preparing a hanging drop consisting of equal parts—one platinum loop each of the blood solution and a twelve to twenty-four hour bouillon culture. Preparations with a dilution of 1 to 10 as a minimum were first examined, other preparations at 1 to 20, 1 to 40 or higher being then made from each specimen where a reaction was obtained at the lower dilution. I now usually begin with the 1 to 20 dilution, my experience being that nothing is gained by the use of lower dilutions than this. Where a genuine reaction is obtained with a 1 to 10 dilution it is equally plain at 1 to 20, and usually also at 1 to 40. On the other hand, pseudo-reactions are less common at the higher dilution. When for diagnostic purposes one slide only is prepared, a 1 to 20 dilution is perhaps the most reliable, with a time limit of half an hour. In general, however, a second preparation at 1 to 40 will render the results more certain. These statements, I ought to repeat, are based upon an experience with artificially infected animals only, and may not be applicable to the diagnosis of hog cholera on the farms.

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[1] A description of the method referred to has been published in the Journal of Applied Microscopy, vol. iii., No. 6.

Tests of Normal Blood. From most of the laboratory animals which I have had occasion to use in the past few months, samples of blood were collected before treatment and tested as to their agglutinating action on hog-cholera bacilli. Out of twenty-six rabbits, with a dilution of 1 to 10, no reaction was obtained in 22. In four pseudo-reactions were present, which, although non-typical, might, if they occurred at a higher dilution, give rise to uncertainty.

No reaction was obtained with the normal blood of the guinea-pig, twelve being examined in all.

In hogs no typical reaction has been found in uninfected cases with a dilution of 1 to 20, but at lower dilutions non-typical reactions may appear, sufficiently marked to give rise to uncertainty. This applies also to the blood of cattle.

Tests of Blood of Infected Animals. After the subcutaneous inoculation of hog-cholera bacilli the agglutinating property appears in the blood, at the earliest in four days. It is nearly always present by the sixth day in all animals which I have tested—rabbits, guinea-pigs, pigs, and cattle. Animals which survive the inoculation for the necessary time, as nearly all do, will show this reaction in the great majorityof cases. Nevertheless, there are exceptional instances in which it cannot be demonstrated. I have noticed this in two out of ten guinea-pigs and in one out of sixteen rabbits, with, in addition, one doubtful case. There were no unusual circumstances connected with these cases otherwise.

The two guinea-pigs died ten days after inoculation, and the heart blood was used for the examination in one case, and in the other peritoneal fluid effusion. In the rabbit death occurred four to five days after inoculation, and the heart blood was used for the test.

When non-fatal inoculations are made with cultures of feebler virulence it can be seen that the appearance of the agglutinating property in the blood is occasionally delayed several days beyond the usual time, and this might possibly account for the absence of the reaction in the rabbit.

Out of eleven pigs examined after subcutaneous inoculation with hog cholera cultures all gave a positive result, the reaction appearing in five days. I have found it present also in all of three which were infected by feeding cultures.

Duration. In animals which survive inoculation the persistence of the reaction seems to depend upon the severity of the disease induced; hence, upon the virulence of the culture and the size of the dose injected. My observations on this point have been few, but I have noticed in some animals yet on hand that the reaction is still present after four months. On the other hand, the reaction induced by the inoculation of feebly virulent cultures almost disappeared from the blood of pigs after six weeks.

The action of sterilized cultures, whether the sterilization be effected by steam or at a temperature of 60° C., is the same as the living cultures, the reaction appearing about four days after injection. Much larger doses are required, and several injections may be needed before this effect is produced. Guinea-pigs and pigs are more resistant, from this point of view, to such injections than rabbits and cattle. The strength of agglutinating power, by repeated injections, may be raised to a high degree, distinct at 1 to 1200 in one of my cases (in the rabbit), but is more transient than after injection of living cultures. Its persistence seems to vary, but may still be present one month after a single injection. It is, according to my experience, more easily produced in rabbits and in cattle than in guinea-pigs and pigs; in fact, I have not succeeded in obtaining the reaction in pigs at all, even with enormous doses of heated cultures.

In tuberculosis and swine plague, in various experimental animals, I have made a few tests, always with negative results.

As to the reaction itself as compared with Widal's reaction in typhoid, typical cases are quite as distinct. The bacillus of hog cholera is smaller than Eberth's bacillus, but individual forms are plainly enough seen with a one-eighth inch dry objective. Clumping, of itself, hardly constitutes a reaction; it must be combined with distinct inhibition of locomotion. Those two phenomena, when the reaction is plain, generally go together. In typical cases there is complete cessation of locomotion—that is, motion across the field, but generally more or less vibratile or whirling movements at the edge of the clumps. In a few cases I have noticed this complete cessation of motion without very distinct clumping. In other cases, where the reaction is feeble, the formation of clumps is the most prominent feature, and motion not distinctly checked. These cases necessarily give rise to doubt as to the genuineness of the reaction, since more or less clumping or grouping of the bacilli often occurs when they are mixed with normal blood or even when untreated. Even after considerable experience some cases will remain in doubt; at least, that is my experience in this disease and in typhoid fever as well.

As to the application of this test to the diagnosis of hog cholera on the farm, I can say very little from personal experience. Since beginning my studies in this direction only two outbreaks of swine disease have been investigated. These were both too far from my laboratory to allow of as thorough investigation as I should have liked, but the post-mortem lesions were what we regard as characteristic of hog cholera. Swine-plague bacilli were isolated in every case, but no hog-cholera bacilli. The sero-diagnostic test, applied to a number of animals in all stages of illness and after death, resulted negatively in every instance. If I were to form an opinion from this limited experience, it would necessarily be either that Gruber's reaction in hog cholera fails us when applied to actual practice, or that our conception of the anatomical lesions characteristic of hog cholera requires revision. Until further experience, however, I prefer not to form any opinion.

THE RELATION OF VETERINARY MEDICINE TO THE PUBLIC HEALTH.[1]

By Dr. William Herbert Lowe,
PATERSON, N. J.

I THINK it is a safe statement to make that people recognize and appreciate much quicker and in a fuller sense what veterinary medicine does for their pet animals and for themselves in a commercial sense in protecting the animal wealth than they do for what the science does for the health and lives of the people themselves.

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[1] Read before the Thirty-seventh Annual Meeting of the American Veterinary Medical Association at Detroit, Mich., September 5, 1900.

When the veterinary practitioner is successful in restoring to health his patron's pet dog, or in saving the life of his valuable horse, his services are in the great majority of instances appreciated; but what he does to protect the health and lives of the people is seldom understood or recognized.

A great work is being done by qualified veterinary practitioners all over this broad land in sanitation and preventive medicine, and it is a deplorable fact that the nature and scope of this work is not more fully understood by otherwise intelligent people. Preventive medicine will advance as its value is recognized and demanded by the public generally.

Not many years since, when contagious pleuro-pneumonia broke out among cattle, and the animal industry of the country suffered heavy financial losses, it did not take the public long to demand State and national legislation to exterminate the disease. This disease struck the most sensitive thing in creation—the bank account—and although there was absolutely no danger of transmission of the disease to mankind, yet measures were taken at once, which, under able guidance at Washington, resulted in the extermination of the disease. While this was as it should have been, yet it seems strange from the stand-point of the veterinary profession that the public is so slow in supporting and encouraging what veterinary science is capable of doing for the health and lives of the people themselves. The conscientious veterinarian is constantly looking out to improve sanitary conditions, have animals kept under hygienic conditions, as well as to treat diseased animals, and last, but not least, to prevent the transmission of disease to human beings. It should be remembered that the veterinarian is truly the guardian of the public health, as in many instances diseases transmissible to man as well as bad sanitary conditions first come under his observation. If he deals with them as they should be dealt with he protects human life and health. Is it not better to prevent infection than to allow it to occur and then try to relieve or cure the patient? Of course, it is not intended or contemplated to put the human practitioner out of business, but simply to relieve the busy practitioner as much as possible.

Speaking seriously, permit me to say that a large integral part of preventive medicine belongs essentially to comparative medicine, and nobody recognizes and appreciates this fact more than far-seeing members of that time-honored profession.

The truth is that the two branches of medicine, human and veterinary, are inseparable. No advance can be made in one without benefiting the other. The contemporary advances in medicine have necessitated an extensive remodelling of the medical and veterinary curricula and methods, and we see as a result the incorporation of the principal veterinary colleges in our great universities.

No fact has drawn a closer connection between animal and human diseases, or the protection of the public health through domestic animals, than the introduction of the antitoxin principles of serum therapy. The immunizing of animals against fatal contagious diseases; the rapid and certain diagnosis of latent diseases which cannot be known by physical symptoms, and their early isolation before they have spread their disease germs among their kind, or even to the human family; the cure of some diseases by the administration of repeated doses of attenuated virus, and the prevention of the development of disease by their early administration, are phases of the rôle of veterinary science which make it a great preserver of the public health. Contemplate for a moment the importance of these serums: Tuberculin, used for the diagnosis of tuberculosis in dairy cattle; mallein, used for the diagnosis of glanders in the horse; vaccine, employed to protect mankind from smallpox; tetanus antitoxin, employed in the treatment of lockjaw; diphtheria antitoxin, employed in the treatment of diphtheria; as well as the antitoxins employed in anthrax, rabies and other diseases. The value of animal serums employed for diagnostic, prophylactic and therapeutic purposes to mankind cannot be estimated.

We hear a good deal in these latter days about "the passing of the horse" which is absurd; but even if such were the case there would still remain a vast field open in this country for qualified veterinarians in connection with the work of State and local boards of health, throughout the length and breadth of this broad land, to say nothing of laboratory and experimental work which veterinarians must participate in, if true science is to advance as it should. Another great field for the veterinarian is in aiding the development and maintenance of the animal industry and wealth of this country; not only in presenting and actually treating and restoring sick animals to health, but primarily in the science of breeding, and in the development of animal life for special purposes useful to man as well as in securing a sound, wholesome meat and milk supply. Then, again, people will always have dogs and pet animals that they want cared for when ill, so it must be evident to every thoughtful person that the field of veterinary research and practice is almost illimitable to the scientific veterinarian.

The United States Bureau of Animal Industry is doing a great work in the matter of the inspection of meat for interstate and foreign trade, but this matter of meat-inspection should not stop here. We as a people are a business people, and here again the financial considerations seem to have more weight with us than that of our health. We are more particular, yes, far more particular, about the quality and healthfulness of the meat we export to England, France and Germany than we are of the meat produced for home consumption.

This is no criticism of the work of the Bureau of Animal Industry, for this branch of the Federal service is carried out as far as the law contemplates and in a very effectual and far-reaching manner. It is the function of local boards of health to take care of this matter. Competent veterinarians must be selected to do this work if it is to be of any real value to the public.

The scandals and sensational reports of bad meat supplied to our soldiers in the Spanish-American war must have suggested the importance of an adequate veterinary inspection of animal food and what it would have meant to the health and lives of the men serving in our army.

A great deal has been said recently about milk-inspection, but it seems to me that the authorities in a great many instances begin at the wrong end of this whole business. Instead of beginning by inspecting the milk, as is often done, they should begin by inspecting the animals, their stables, and the dairy generally. Every dairy should be under veterinary supervision. A good cow, healthy and sound, properly stabled and properly fed is going to give good, wholesome milk; and a poor cow, unthrifty or unhealthy, improperly stabled and improperly fed is going to give poor, unwholesome milk.

The veterinary inspector should require good hygienic and sanitary conditions. The cows as well as the stables should be kept clean, the drainage and ventilation must be looked after, and the cows must have ample air, space and light. Proper and good food and pure drinking water are essential.

The milk as soon as drawn from the cows should be removed to another building, to be taken care of and prepared for market, away from objectionable odors and injurious bacteria and germs. Not infrequently healthy milk absorbs poisonous or disease germs between the time it is drawn from the cow and the time it is delivered to the consumer. A few enterprising firms have done much to provide a wholesome milk supply, such as the Fairfield Dairy Company in my own State; but the general way cows are cared for and fed, and the way that milk is usually handled, is far from what it should be. The public need educating in this matter, and local boards of health should require proper veterinary supervision over dairies and the milk supply in every locality.

I do not wish to tire you with a long paper, so will conclude with the request that the relation of veterinary medicine to public health shall be discussed as its importance demands.

EXAMINING AND LICENSING STALLIONS FOR THE STUD.[1]

By J. I. Gibson, V.S.,
DENISON, IOWA.

This subject is of the greatest importance to the men whose time and money are invested in any line of the equine industry of this great country. The inspection of stallions must carry with it the proper selection of brood-mares to insure success and the elevation of our general standard of breeding. The production of a good horse is not an accident. Horses are, nine times out of ten, as good as they were designed to be by the breeder who selected the sire and dam. A good horse-breeder studies every point of strength or weakness in stallion and mare, taking care to have one strong where the other may be weak, and expects by such careful selection to develop just the horse he planned for, and he is seldom disappointed, because he has the correct theory of breeding.

In order to succeed in breeding, we must breed and cultivate the distinct market classes, and get rid of the idea of an all or general-purpose horse. This line of talk is not especially interesting to the average veterinarian, but let me remind you that if veterinary inspection should be instituted a great many veterinarians would awaken to the fact that they are not qualified to give good advice or proper instructions to the ambitious breeders. They would realize that they had spent too much time studying the horse in disease, and had not devoted time enough to the study of the perfect horse. We, as veterinarians, should not only be students of the principles of good breeding and selection, but should insist that all veterinary colleges maintain a department in which is taught the classifying and judging of the distinct classes of types of horses demanded by the markets as well as the principles of good breeding as applied to all domestic animals. Experience has taught us that to be a successful veterinarian in practice one must be a good judge of any and all classes of horses; for the veterinarian who is not a good judge of a horse in health will have trouble in convincing the owner that he is qualified to treat the horse when sick.

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[1] Presented before the American Veterinary Medical Association, Detroit, Mich., Sept., 1900.

Heredity has a great deal to do with successful as well as unsuccessful breeding. By heredity many good characteristics are sure to be transmitted, and the breeder should be able to foresee defects and avoid their reproduction. By inspecting stallions and carefully classifying and selecting mares, we can prevent a great many weaknesses and objectionable characteristics, and while so doing can plan to develop the desired size, color, bone, and disposition in every class of horse we raise. The man who breeds for speed only cannot be governed by fixed rules, therefore, he and his sire of speed must in a sense be excluded from this paper.

This Association should prepare a scale of points to be adopted by all the fair associations in the country, and horses should be scored for points, just as hogs are. This would force exhibitors to build or breed each horse according to the ideal scale adopted for the class or type to which such horse belongs.

In order that we may hasten the desired status in horse-breeding we should seek to bring about a rigid veterinary inspection of stallions for the stud, with the licensing of all that pass a satisfactory examination, and the emasculation by the examining veterinarians, without additional fee, of all rejected on such examination.

1. The stallion should undergo a careful examination as to health and freedom from all contagious and infectious diseases, paying particular attention to the healthy condition of the genital organs. A failure to detect such diseases would often prove a serious loss to all parties concerned. The bond

of the stallion proprietor should require him to remove his stallion from the stud on the first symptom of disease of any kind, and the law should provide for the punishment of the owner of a mare which is known to be diseased to such owner, but which is brought to be bred to such licensed stallion. Such provision would afford protection to the owners of stallions, and often prevent outbreaks of contagious and infectious diseases.

2. The horse's pedigree should be looked into. The time has surely come when no grade stallions should be allowed to enter the stud. None but full bloods should be passed as eligible for breeding.

3. A careful examination as to soundness, freedom from hereditary weakness or unsoundness, and if such ailments as are transmitted by heredity be found to exist, the stallion should be condemned unless it can be clearly shown that his ancestry on both sides for two generations back were absolutely free from such hereditary weakness or unsoundness.

4. His form and proportions should be carefully taken, viz., height of body and length of legs, girth of chest and loins, form of back line, height of head when standing naturally erect, girth of cannon-bone just below the knee, and metatarsal just below the hock, weight, form of head and face as an indication of disposition; also his various gaits in action.

The examiners should be furnished with a uniform set of blanks, setting forth all the points above mentioned, and, taking a hundred for perfection in each, the examiner should give each stallion his percentage of perfection on each and every point and his general average as a whole. The examiner's fees should be paid from county or State funds, so that he would be in no way obligated to the owners of stallions. A severe penalty should be attached by law to malfeasance of any nature in office, and he should be required to give bonds for the proper conduct of his office. The owner of a stallion should be required to breed only a certain class and style of mares, such as the inspector should deem proper and define in conditions of license.

The inspector should be appointed by the Governor, and he should be an assistant to the State veterinarian; a complete record of all licenses issued for stallions, in the form of a duplicate of such licenses, should be kept in the office of the State Veterinarian, and a record of all licensed stallions in each county should be made in the office of the county recorder. The above-mentioned records would enable the State to keep a better horse-census. Each owner of licensed stallions might be required to file a report with the State Veterinarian, setting forth the number of mares bred to such licensed stallion and the number known to be pregnant on or before December 31st of each year. If any stallion be found in the stud not so licensed and recorded the law should hold the owner guilty of a misdemeanor, and he should be punished accordingly. All stallions should be examined during the month of January, and if licensed they should be re-examined for renewal of license during January of each year.

After briefly outlining the inspection, the writer recommends that the American Veterinary Medical Association pass resolutions recommending legislation in all the States and provinces requiring the licensing of stallions, subject to an examination on a scale of points as outlined above.

The writer further recommends that a committee, consisting of five members of the Association, be appointed to prepare a complete score-card for each class of stallion, and report same at next meeting.

EDUCATION OF LAW-MAKERS.[1]

By Joseph W. Parker, D.V.S.,
KANSAS CITY, MO.

Modern politics appeals to intelligence. A bureau of publication is now an essential feature of every successful political campaign. It has been said that the education of a child should begin three generations before it is born. To paraphrase, it might be said that the education of a law-maker must begin with the people who elect him, or on whom he depends for further political successes. Whatever a large part of the people demand, their representatives must and will enact. Legislators are seldom far in advance of their constituency.

The concentrated primary aim of veterinarians relative to needed legislation, therefore, must be to inform the public by precept and example that the profession is one which should be regulated by law, that the demands for legislation in these matters arise from the needs of the public. In the practice of veterinary medicine the interests of the patron and of the general public are involved. The immense value of domestic animals and their products, and the intimate relations existing between diseases of the lower animals and of man, justify and demand not only that those who are permitted to practice shall be required to furnish evidence of their qualifications, but laws to effectually control the spread of infectious and contagious diseases and for the supervision of the food supply of the public.

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[1] Read at twenty-fourth regular meeting of the Missouri Valley Veterinary Association, St. Joseph, Mo., June 25, 1900.

It devolves upon regular veterinarians to be the leaders in the campaign of political agitation and education, as by their training they are especially fitted to be. The approaching biennial sessions of the Legislatures of Missouri, Kansas, and Iowa, and the State elections to be held next fall make this a peculiarly fitting time and occasion for renewal of activity on the part of veterinarians, and especially on the part of this Association. Whether we succeed at this time or not in securing the recognition at which we aim, we will be laying the foundations for success in the future. I take it that there is no question in the mind of anyone present whether the members of the Missouri Valley Veterinary Association will loyally co-operate to secure legislation next winter; it is only a question of how we shall approach the task before us. It is with the hope of exciting discussion which shall evolve a practical plan of action that the essayist has undertaken to present this subject before you.

The foundations of the campaign must be established in the minds of voters, broad and strong, as befits the growing importance of the subject. The public is to be reached in three ways, viz.: Through personal contact, from the speaker's platform, and through publications.

First in importance is personal influence. To have intimately known a man of high honor is to have an exalted opinion of man in general. The community that has been fortunate enough to have in its midst a qualified, honorable veterinarian has had its opinion of that profession elevated and broadened. No matter whether the doctor be eloquent or not, or whether he be able to write a convincing article in the most polished language, if he is one of nature's noblemen, honest, conscientious, diligent, and thorough in business, and courteous in his business and social intercourse, he is elevating his profession in the minds of his patrons and fellow-citizens. He shows forth, in a very practical and convincing way, that his personal interests are in harmony with the interests of his patrons and with the public good.

While it is essential that our calling shall be regarded favorably as a learned and highly useful one, our demands for legislation must be for those things which are to the interest of the public. The profession is dignified by the earnestness with which it seeks after the public good, not primarily selfish interests. Whatever degree of respect the title "veterinarian" commands is the result of the silent teaching of a very limited number of veterinarians (for in these States we are few and far between), and in spite of the disrepute resulting from itinerary practice of hundreds of quacks. By maintaining among the profession a high standard of personal and professional ethics, thus increasing the usefulness of the calling, favorable opinions must be won of the public before they may be expected to listen to veterinarians in matters of legislation.

For reaching people interested I believe that farmers' institutes offer opportunities promising good results. If arrangements can be made with the promoters of farmers' institutes to place a veterinarian on each programme whenever practicable, doubtless competent men can be found who, for their interest in the progress of the public and the advancement of veterinary science, will prepare papers or addresses on subjects that interest both farmers and veterinarians. At suitable times exhibits might be made a feature of the veterinary talk. To effect this, co-operation of veterinarians is essential, for no one man can afford to take from his time and business to attend all farmers' institutes unless salaried for that purpose. Stockmen's meetings also afford excellent opportunities for the education of the public, and a veterinarian should be on every programme. As men making some pretensions to learning, veterinarians must identify themselves with progress in all matters related to their work.

We are fond of referring to the broad field of usefulness of our profession, but should remember that it is useful to others only as we make it so, and it rewards us according to our deserving. Granted that the veterinary profession has already won in these States the respect of those who have influence in our legislative bodies, and that our demands are for those laws which would be for the benefit of the public, we may hope to accomplish something at the ensuing election and with the State Legislatures.

Newspapers may also be used to advantage at times. In agitations for pure food-supply, control of infectious and contagious diseases, sanitation, and kindred topics, the columns of the secular press will certainly be utilized, and their articles should not be inspired by ignorance of the true merits of the questions, or by malice of those whose interests are opposed to the interests of the public.

Legislators are to be influenced by the same considerations which influence the opinions of others, by public sentiment, by appeal to their personal ambition and vanity, and by lobbying. I believe that the average statesman (pardon the misapplication of the word) oftener asks himself whether this or that official act will improve his chances of further political preferment than he concerns himself with the public good. When the interests of his constituency and his own political prospects are in harmony, well and good; but if there is apparent conflict, the interests of the public are usually sacrificed.

As veterinarians we must, therefore, become practical politicians and lobbyists; must be known as local writers for the secular press, and as speakers on all suitable occasions. We must co-operate with mind, money, and motive; and, above all and including all these, must be imbued with professional *esprit du corps*, and actuated by altruistic motives.

THE Minnesota State University, in which Dr. Reynolds holds full professorship, ranks second in point of attendance among the colleges and universities of America. The enrollment last year was about 3300. This includes no preparatory students, as this University has long since done away with preparatory courses, and students can only enter when well prepared for advanced genuine collegiate work. Harvard ranks first, University of Minnesota second, and University of Michigan third. This note emphasizes some remarks made at the last banquet of the A. V. M. A. concerning the marvellous growth of Western universities. This growth seems to be true not only in point of attendance, but in the way of magnificent buildings, splendid laboratory equipment, and well-paid faculties.

DEPARTMENT OF CANINE AND FELINE MEDICINE AND SURGERY.

BY CECIL FRENCH, D.V.S.,
WASHINGTON, D. C.

CARPUS UNILATERALIS CONGENITALIS ET LUXATIO CAPITI RADII (CONGENITALIS?).

UNDER this term I shall describe a congenital deformity in a dog which was recently brought to my notice by Lincoln Johnston, M.D., of this city. Dr. Johnston obtained the specimen at a local pound, having severed the left leg at the inferior extremity of the humerus, after the animal, which was a full-grown mongrel and weighed some fifty pounds, had been removed from the lethal chamber. Unfortunately, he did not see the animal in the living state, so did not observe its mode of progression.

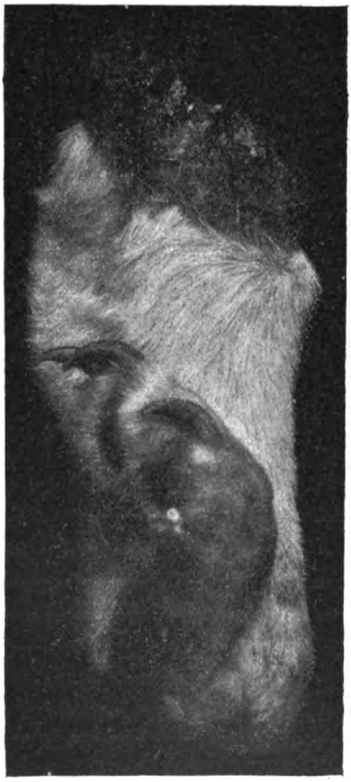
The condition and relative position of the parts in this specimen correspond to what is known in the human subject as "talipes," or club-foot.

Gould defines talipes as: "Club-foot, a deformity depending upon contraction of one or more muscles or tendons about the foot, either congenital or acquired," the word being derived from *talus*, an ankle, and *pes*, a foot. The deformity in my case having existed in the foreleg, it became necessary, in order to be specific in my definition, to draw on the word *carpus* instead of *talus*. In the human subject the congenital form has been attributed to deficiency in the amount of liquor amnii. This would cause compression of the feet by the uterine walls, leading to contraction of the ligaments and muscles on one side and stretching of those on the other, the condition becoming permanent. Another cause is given as disordered nerve-function acting on certain muscles which would draw the foot into the deformed position.

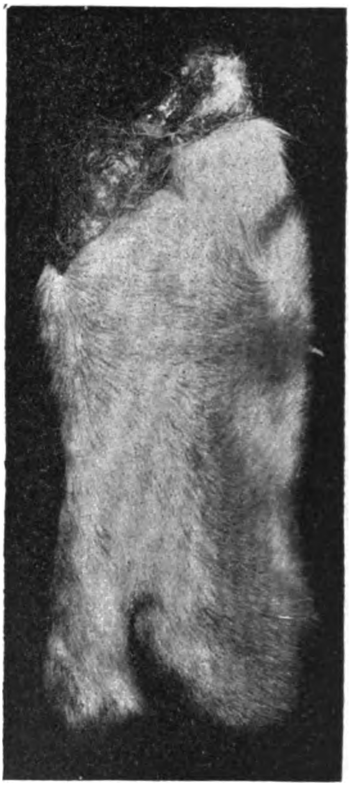
Photographs A and B represent the specimens as received by me. It is shown here in the vertical position with the sides exposed to view, which was evidently the manner in which the leg was made to support the body when at rest during the animal's life. But the appearance of the pads of the ruptured digits, indicating that they had been subjected to ordinary wear, inclined me to the opinion that the movements of this leg had been conducted in an antero-external oblique direction.

The specimen was dissected under the supervision of Dr. Lamb, pathologist at the Army Medical School, and deposited in the museum of that institution, after again being photographed, as represented in pictures C and D.

A



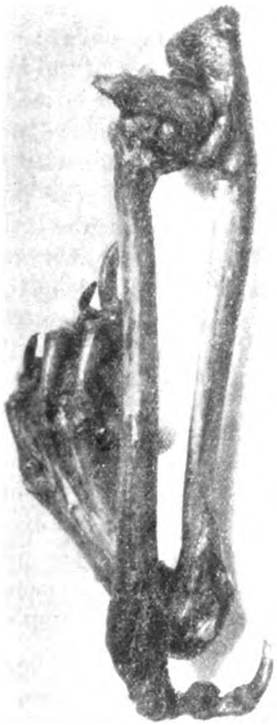
B



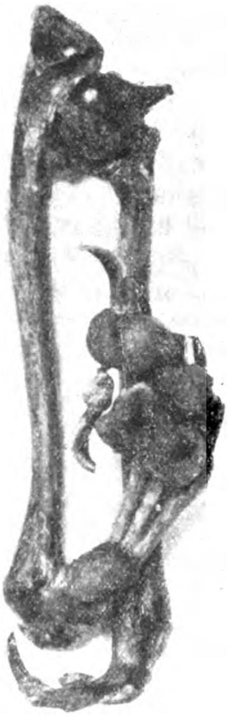
The ulna is in normal position and articulates properly with the distal extremity of the humerus. The radius is completely separated from the ulna, its head being in a position of upward dislocation and antero-internal rotation, with resultant pseudoarthrodic formation. Whether this humero-radio-ulnar dislocation was of congenital origin or not it is difficult to say. The weight of the body seemed to have been largely borne by the radial portion of the irregularity, which may have been sufficient to have produced a luxation after birth.

Both portions of the carpal joint were almost immobile. The component bones were not isolated, since this would have necessitated such distinction as to destroy the specimen for exhibition purposes; but it can be seen that those articulating with the ulna give rise to three perfect digits, and those forming the radial portion one perfect digit. Attached to one of the three digits was an imperfect one formed of its distal phalanx only.

C



D



Photographs A and B give a good idea of the displacement these bones have undergone.

THE CONDITIONS REVERSED. In the *Veterinarian*, 1896, vol. lxix., p. 683, is the following extract from *The Field* (English), of August 15th, headed: "A Precocious Puppy." "About four months since we had a mongrel bitch puppy given us, about the size of an ordinary fox-terrier, and she is seven months old at the present time. Two months since we had a male kitten given us about five weeks old, which its mother had deserted. About a week after having had it we noticed that the puppy was full of milk, and could not understand it, until one day we caught the kitten lying down and sucking the bitch puppy, which the latter evidently thoroughly appreciated. The kitten continued to do so until two days since, when it showed signs of sickness through poisoning and died this morning. I may add that the puppy was extremely fond of the kitten, and it showed signs of intense grief."

The following incident has recently come to my notice: Two white female Angora cats were acquired by a member of the family of Mr. A. L. Barber, of asphalt fame, and not long after both gave birth to kittens. Both of the cats and their families nested in the same box, and all the kittens nursed indiscriminately from either mother. A minute specimen of the Spanish silk poodle breed of dogs was also purchased after the birth of the kittens. The puppy had evidently been only just weaned. It was housed in the same room in which the cats were, and before long it was found to be fully affiliated into the feline circle, suckling alongside of the kittens in perfect contentment.

A BOTTLE-LOVING CAT. Miss Purman, of Takoma Park, D. C., owns an Angora cat which she raised artificially by bottle and nipple since it was three weeks old. This particular animal, now at the age of two years, shows a remarkable love for the milk-bottle. At sight of the latter it rolls over on its back and extends its forelegs in a supplicating manner. The bottle is then placed between its paws, where it is safely supported until the contents have disappeared. An ordinary baby's feed-bottle and nipple are used, but distinct aversion is shown to a new nipple.

ACUTE INDIGESTION IN A DOG. There is a popular idea, well founded or otherwise, that crab-meat and milk are incompatible in the human stomach. They would certainly seem to be in that of the dog. A year-old fox-terrier made an ordinary meal of these two article of diet, and within ten minutes was seized with clonic spasms. The spasms continued some thirty minutes, until he was brought to me. Following my usual course of procedure in spasm cases, and without having been informed as to the foodstuffs recently taken, I administered a hypodermatic injection of. muriate of apomorphine, grain one-twentieth, and followed this up with rectal injections of water to stimulate evacuation of the bowels. Emesis was promptly produced, the vomitus consisting of curdled milk, unchanged crab-meat, mucus, and digestive fluid. The nervous symptoms then rapidly subsided, and within half an hour the animal was returned to its owner.

DEPARTMENT OF SURGERY.

By W. E. A. Wyman, M.D.V., V.S.,
BURLINGTON, WIS.

J. A. Sloan, B.Sc., M.D.V.,
SAN FRANCISCO, CAL.

Dr. Robert Jay, M.D.V.,
WEST LIBERTY, IA.

Hoof Diseases.

Can the "practical eye" with one glance make the positive diagnosis, "hoof lameness?" This all-important question, on the whole, must be answered in the negative. The so-called practical eye is inclined to make mistakes, as the successful run of a great many diagnoses leads to an excessive confidence, which in due time means a superficial diagnostician. Thus one meets in practice a competitor's diagnosis of "navicular disease," while in reality a bit of a nail left in the hoof at the point of the frog is the explanation. It is true the horse points, has a distinct supporting leg lameness, the diseased hoof is possibly smaller than the other one, the history of former lameness on that foot, all point toward navicular arthritis. But what induces the next man to examine the foot more thoroughly? Simply because he detects excessive pulsation of the digital arteries of the lame leg, at once showing him that an active inflammation is present, navicular disease and excessive pulsation of the digital arteries being incompatible (see my *Clinical Diagnosis of Lameness in the Horse*, "Differential Diagnosis," page 74). Such cases we all have met. While a keen eye and constant practice are essential in the diagnosis of lameness, routine examinations (which mean thoroughness) are to be preferred by the vast majority of practitioners, as most of us need not hope to equal the late Professor Dick, of whom it was said that he could locate the seat of lameness by simply hearing the lame horse's footstep.

The first thing to interest the surgeon is the history of the case. The practical point here is not to ask questions beyond the sphere of the one presenting the horse for examination. A question in the wrong place may induce him to think that you are fishing, and are trying to find out too much from him. For instance, when the shoe is plainly a new one, do not ask him how long he has been shod. When pathological changes of long standing present themselves, do not ask him how long is he lame, but suggest at once that he must have been lame for a considerable period and if the owner at such a moment states that he has not been lame exactly but just limped a little, do not educate him and produce Webster's unabridged and show him the relationship of limp and lame. We are public servants, and must cater to the taste of the public—of course, without exposing one's manhood to criticism.

The essential points in the history of lameness are nine, and I quote from my *Diagnosis of Lameness in the Horse* as follows: How long is the animal lame? Under what conditions did he go lame? Was the lameness first seen while at work, or did it appear on rest? Was he shod recently? Did he sustain external violence? Did the lame leg ever show any swelling? Has the lameness decreased or increased since it first occurred? Does the lameness increase while working, or is it more pronounced after a rest? Has the animal been treated; what was the treatment?

The greatest trouble one experiences in questioning the average horse-owner lies in the fact that he is prone to give his interpretation of what are to him facts rather than actual facts which the surgeon wants. Then there is a class which expect the surgeon to be a mind-reader and who want to see how much according to their notions he knows; and finally the teamster of foreign tongue, who knows too little of anything, answering most likely any question with "Yes, sir," or "I don't know," accompanied with a broad grin. These are some of the difficulties one meets daily, at least in the practice of our large cities, while the country practitioner is more agreeably situated by reason of the entirely different relationship between himself and the owner of the animal, and while occasionally a smart farmer will cause a ripple on the otherwise smooth seas of the rural practitioner, by far most of them are only too ready to tell all they know, provided the private treatment that they instituted previous to calling in the surgeon has been followed by good results. Should their experiments have failed, then silence, and if pushed, the ancient order of prevaricators is called into action. But, after all, it is only human to hide the inferior product of one's self-recognized blunder.

Having successfully obtained the history of the case, the next thing is to locate the lame leg. To begin with, the lameness is a supporting leg lameness, increases on hard ground and (barring a few instances discussed fully elsewhere) decreases on soft ground. When travelling in a circle, with the lame leg toward the centre of the circle, supporting leg lameness increases as an excess of weight is carried at that moment by the lame leg, thus increasing intracapsular pressure. Therefore, while walking and trotting supporting leg lameness is present. At rest the animal points, as a rule, more or less permanently or intermittently, depending on the seat of the diseased area within the hoof and the intensity of the inflammation. When pivoted upon the diseased hoof sudden volar flexion, especially of the lower phalangeal articulations, shows itself—that is, the foot breaks down, as it is commonly termed. Of course, these symptoms, as well as others to be mentioned, are not alone peculiar to hoof diseases, but accompany also the diseases of the inhibitory apparatus and pathological states of the joints and bony column. Right here lies the reason why the practical eye at times may fail to land a correct diagnosis. Palpation and inspection are absolutely necessary to arrive at an up-to-date diagnosis. To the progressive man the ambiguous statement of "hoof lame" is as insufficient as the broad diagnosis of "shoulder lame." The point is to locate the exact seat of the lameness, as only then therapeutic interference and prognosis are tenable.

The next step consists of a general inspection of the animal at rest, then while walking, and, if necessary, at a trot.

What deviation from the normal as regards posture and weighing does the lame leg exhibit? Pain induces the animal to take such positions as afford him relief. As previously stated, hoof lameness means a supporting leg lameness—that is, the anterior half of the step of the lame leg is larger than the posterior half which at the same time is shortened in time. Explained by the fact that the pressure within the horny capsule, the intracapsular pressure, is greatest at the moment the lame leg is to execute its physiological function of assisting in pushing the body-weight forward and approaches the centre of gravity. To the untrained eye this appears as a retarded movement of the lame leg, and explains the rather unpardonable mistake of shoulder lameness, while in reality the animal is hoof lame—a blunder often indulged in. Should there be any doubt, have the horse moved in a circle of fair dimensions. Whenever the horse moves with the lame leg toward the centre of the circle, for instance, the left foreleg being lame, and the horse is moved toward the left, and lameness on that leg is more marked now, but when the lame leg is on the outside of the circle—that is, the horse is trotted toward the right—a supporting leg lameness is positively present. I am not now speaking of mixed lameness where both supporting leg lameness and swing-leg lameness are present, as, for instance in spavin, as here the above rule does of necessity not hold good, nor does it belong here, since hoof lameness is under discussion, the general subject of lameness having been exhaustively dealt with elsewhere.

If possible, the horse is exercised both on soft and hard ground, as a rule, hoof lameness increasing greatly on hard ground, as it induces greater concussion and intracapsular pressure, consequently increasing the pain and lameness. As the hoof-lame animal trots there is a perfect flexion of all the joints present unless other pathological states inhibit such. In the majority of hoof lamenesses a few steps suffice to bring out the lameness, while in some forms of chronic pododermatitis prolonged exercise is required to make satisfactory observations—all points to be discussed fully later on.

From an etiological and therapeutic stand-point it is well to study the motion and footing of the lame leg. Thus the toe-out and toe-in types of legs, etc., unless the bearing surface is properly levelled, assuring a balanced state, lead in due time to bruised conditions of the pododerm. Thus the diagnosis, while correct enough, is only a superficial one, as the real cause of lameness in such instances rests with an outside or inside wall too high, which, unless corrected, means a continuation of the lameness and most likely a change of veterinarians—a consummation devoutly not to be wished for, as it is much easier to get customers than to hold them.

The horse now stands still, and inspection of the lame leg, comparing it carefully with the other sound one, is the next step. Have him stand squarely on all four feet, if possible. Size up the whole of the lame leg, inspect it from in front, laterally, and from behind. Thus difference in size of muscles, atrophy, bones, and hoof is realized. Inactivity atrophy of the muscles of the shoulder, forearm, croup, and thigh, as a rule, accompany hoof lameness—sometimes of but few days' standing. Take into consideration the position of the toes and legs toward each other.

A rate of five dollars per week, or fifteen dollars per month, for treatment of horses is the announced offer of one of the "Lone Star State" veterinarians. The card received fails to state if this includes board.

The third edition of Duane's *Medical Dictionary* has had many valuable additions from a veterinary point of view through the assistance of Professor Leonard Pearson, who aided in its compilation.

THERAPEUTICAL AND PHARMACEUTICAL NOTES.

EUROPHEN AS A SURGICAL DRESSING. Dr. Coleman Nockolds, of Grand Rapids, Mich. (*American Veterinary Review*, March, 1900), states that he prefers europhen to all other surgical dressings as an application to the abdominal wound in ovariectomies. The application of the drug by means of a powder-blower or upon gauze after enucleation of the eyeball also gave excellent results. In eye diseases, such as ophthalmia, simple leucoma, keratitis, and wounds of the conjunctiva and cornea, an ointment of europhen, one drachm to the ounce of lanolin, proved very efficient. For otitis externa and other diseases of the external auditory canal a good application was found to be a powder of equal parts of europhen and boric acid, which was insufflated after cleansing the parts. Europhen proved to be an ideal antiseptic dressing for traumatisms and ulcers, and for wounds following operations on fistulæ and for the removal of tumors. Although a powerful antiseptic, it is non-poisonous, and has but a slight odor. This is of advantage in the treatment of house-pets. It promotes the formation of granulation tissue, allays irritation, and maintains as nearly an antiseptic state as possible in veterinary practice. In skin diseases of the horse and dog, Dr. Nockolds further recommends an application of europhen, one part, in olive-oil, seven parts.

STERILIZATION OF CATGUT BY ALCOHOL. Bard (*Gazette des Hopitaux*, November, 1899) sterilizes catgut in alcohol vapor raised to 125° C. This makes the catgut seem stiff, but before use it is soaked in 80 per cent. alcohol. It is very strong, holds its knot, and completely disappears in the tissues in eight days.—*Therapeutic Gazette.*

HEALING POWDER. A mixture of equal parts of iodoform and calomel will be found to be an excellent antiseptic application for wounds.

ANCIENT USE OF STRYCHNINE.—Strychnine as a therapeutic agent and also as a criminal poison was well known to the ancient Egyptians 1400 B.C.

EDITORIALS.

ARMY VETERINARY CORPS.

(Concluded from page 508.)

The Chairman: Assuming that we must have trained veterinary surgeons—I doubt if there is very much difference of opinion on that point—the question is, how to get the best results from them. They are practically staff officers. It has been suggested by some very able men that the best results would be obtained by having them made regimental staff officers, except those who are in the Quartermaster's Department, who would be under the control of the quartermaster. That is the point, I think, upon which the committee would like to hear your views. This bill establishes a corps of veterinary surgeons, with a head, and the question is why the other system, by which they are subject to the commanding officers of the regiments and batteries, would not be as good or better than a veterinary corps which is subject to a central authority here. That is the question.

Mr. Marsh: That is the point of difference.

The Chairman: That is the point of difference upon which the committee wants information. There is no difference of opinion among the members of the committee, I assume, as to the desirableness and valuableness of veterinary surgeons in the Army.

Mr. Marsh: The question is whether they shall have a separate corps, such as is proposed in this bill, or whether they shall be a part and parcel of the Army itself, as a quartermaster, or an assistant surgeon, or regimental surgeon is on the regimental staff.

The Chairman: That is in the volunteer service.

Mr. Marsh: That is true. The proposition contained in this Senate bill involves the organization of an entirely new staff, the head of which is to be a colonel, and the head of which it will very soon be insisted should be a general, so that he may be on a plane with the heads of the eleven other staffs. That is the only question, I think, upon which we want to hear statements.

Colonel Huidekoper: To get absolute harmony of work the men, you know, must be supplied with the same instruments, the same books, and medical supplies, return uniform reports, be stationed where their ability can be used to the best advantage, etc. For that purpose I think a corps system is absolutely necessary. A man put in one place and kept there has his views confined, and consequently his views become narrow; if he is attached to a particular regiment, and sees no future of promotion into the better class, he does not get the wider experience which makes him a better officer. If a local man is assigned to a particular regiment and he happens to die, the regiment must wait until it is supplied, through another examination with another man who is tied right down to a particular class of work under a particular officer; whereas, under the other system, if a man happens to die, a first lieutenant of the Quartermaster's Department can be assigned to that regiment, and it will not have to wait three days until they will have a competent man assigned back to the duty until a future examination furnishes them with another man.

Mr. Marsh: That depends on whether you have some extra men on hand, not needed, as to whether you assign them within three days or not. If they are needed in some other position you would have to supply that other position as well as the first.

The Chairman: What is the rule in other countries in that regard? Are they staff officers or not?

Colonel Huidekoper: This book, published by the Adjutant-General's Office in January, 1899, gives the entire staff of every European army. Every staff organization has a veterinary surgeon attached to it—the French veterinary service, for instance, and, a little later, the one in England—with the exception of two countries, Roumania and Austro-Hungary. In those countries there is what is called a sanitary service, with one head, which includes three sub-departments—the medical officers, the apothecaries, and the veterinary surgeons. That condition existed in Belgium up until 1892, when the veterinary department was removed from the sanitary board and made a separate corps; but according to a letter which I received last autumn from the chief of the service, before 1892 the veterinary service was a part of the service of health of the army, which comprised the medical men, the pharmacists, and the veterinarians. The service was directed by a medical man, the inspector-general of the service of health of the army, having the rank of a major-general. The chief veterinarian was attached. Now the veterinary service is a separate department, reporting directly to the minister of war. Roumania, then, is the only one——

The Chairman: Colonel Marsh calls attention to the fact that the so-called Hull bill provided for a corps. It did not, as I understand.

Colonel Huidekoper: No, sir.

Mr. Marsh: I understood you to say that.

Colonel Huidekoper: No, sir. It provided for commissions for two officers to each cavalry regiment.

Mr. Marsh: I understood you to say that the provision of the Senate bill on this subject was substantially the same as that of the Hull bill of last Congress?

Colonel Huidekoper: No, sir; that was the amendment authorized by the President and the Secretary of War, which was offered as an amendment in the Senate. The Hull bill provided for two veterinarians, with the rank of second lieutenant.

The Chairman: That is what I understood you to mean.

Colonel Huidekoper: Then the Senate cut out that provision and gave the men the pay of second lieutenants and sergeants-major without rank.

Mr. Marsh: Did the Senate committee report that provision at the last Congress?

Colonel Huidekoper: No, sir; it came to the floor of the Senate with the indorsement of the Secretary of War. It was too late for the committee's action.

Mr. Marsh: Then it was not indorsed by the committee of this house, nor of the other, at the last Congress?

Colonel Huidekoper: No, sir.

Mr. Marsh: And this provision now in the Senate bill was not indorsed by the Committee on Military Affairs in the Senate, either?

Colonel Huidekoper: No, sir. It had the indorsement of General Miles, General Brooke, General Merritt, the commandant at West Point, the Quartermaster-General, and a large list of prominent army officers who had served for years.

Mr. Marsh: You say this system has their indorsement?

Colonel Huidekoper: Yes, sir.

Mr. Marsh: Have you got it there?

Colonel Huidekoper: I have copies of the letters of Generals Merritt, Brooke, and Wilson, Colonel Hein and others.

Mr. Marsh: Do they indorse the organization of a separate staff or bureau?

Colonel Huidekoper: All, with the exception of General Merritt. General Merritt objected to the formation of a new bureau, while at the same time his letter——

Mr. Marsh: Did General Miles favor the new bureau?

Colonel Huidekoper: Yes, sir.

Mr. Marsh: With a colonel at the head of it?

Colonel Huidekoper: Yes, sir.

Mr. Marsh: In what report does he favor it?

Colonel Huidekoper: General Miles?

Mr. Marsh: Yes; in what report does he so favor it?

Colonel Huidekoper: He has made no report, sir; it has never been submitted to him officially.

Mr. Marsh: He has never favored it officially?

Colonel Huidekoper: Not in an official indorsement; no, sir. It was never referred to him officially.

Mr. Marsh: Have these other generals favored it officially?

Colonel Huidekoper: No, sir; not in an official indorsement.

The Chairman: It was in writing to you?

Colonel Huidekoper: In writing to me.

The Chairman: They expressed their views in that way?

Colonel Huidekoper: Here are the originals. I have copies of them.

Mr. Marsh: Will you read them?

Colonel Huidekoper: Yes, sir, I will They are rather long, but I will read them if you wish.

The Chairman: If they are very long, you had better put them in the record.

Mr. Marsh: What is the date of the first one?

Colonel Huidekoper. General Merritt's letter is dated February 15, 1900.

Mr. Marsh: 1900?

Colonel Huidekoper: 1900. It is a letter addressed to me. I have his original letter here if you would like to see it.

Mr. Marsh: Just put them all in the record.

Colonel Huidekoper: They are all in the Congressional Record. They were printed there.

The Chairman: I think you will find them in the debates on the bill, but it is well enough to put them in here also.[1]

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[1] **These letters from Major-General Wesley Merritt, Major-General John R. Brooke, Major-General James H. Wilson, Brigadier-General J. C. Breckenridge, Brigadier-General Wallace F. Randolph, Brigadier-General Charles King, General James A. Beaver (Ex-Governor of**

Colonel Huidekoper: Since that time General Brooke has come to Washington, and I have consulted him personally in regard to this bill, and have his approval of it.

Mr. Marsh: In regard to what bill?

Colonel Huidekoper: In regard to section 14 of this bill, the amendment offered by Senator Kenney in the Senate.

The Chairman: Was it in existence at that time?

Colonel Huidekoper: Oh, yes, sir; Senator Kenney gave notice of the proposed amendment on the 2d of March.

The Chairman: But this letter was written in December?

Colonel Huidekoper: I have just stated that since that letter was written General Brooke has been here, up to a week or so ago, and I consulted him personally in regard to it.

Mr. Marsh: Practically, the question here, Colonel (without consuming more time than is necessary), is whether this veterinarian force shall be a part of the Army, or whether it shall be a separate staff organization?

The Chairman: That is the whole question.

Mr. Marsh: Everybody understands the importance of veterinary surgeons.

Colonel Huidekoper: I think that, to get effective work, an independent organization is necessary, the head of which, while the men are directly subservient to the officer to whom they are assigned for work, will be a channel through which information can be obtained as to the class of work they do, so that the results can be compared and their efficiency known. An officer who is very efficient under one commanding officer might not be under another. He might become excessively lax under one commanding officer, and yet be an efficient man if placed at work somewhere else, with different surroundings.

Mr. Marsh: Of course, in the practical operation of this system, you would have to place a veterinary surgeon where he could get along harmoniously and develop his best ability?

Colonel Huidekoper: Yes, sir.

Mr. Marsh: And instead of making him conform to conditions you would have conditions conform to him?

Colonel Huidekoper: On the contrary, I would make him conform to the conditions.

Pennsylvania), Colonel O. L. Hein (Commandant of Cadets, West Point), Colonel J. G. C. Lee (Asst. Q. M. General), Colonel D. D. Wheeler (Deputy Q. M. General), Major Jno. W. Pullman (late Chief Q. M. Puerto Rico) have been published in pamphlet form and in the Congressional Record, May 4, 1900.

Mr. Marsh: Well, you would not be doing that if you changed him from place to place. You would be hunting for a condition of things which would suit him, instead of making him suit the condition of things at the place where he was ordered to report.

Colonel Huidekoper: I think there are plenty of means in the Army, if a man is not efficient, and does not do what his duties require him to do, of getting rid of him.

Mr. Marsh: But you said he might get to be very efficient under one officer and not be efficient under another, and consequently you would change him, so that he would not have to adapt himself to conditions.

Colonel Huidekoper: I have seen this same thing occur in the Medical Department, where a commanding officer preferred not to have a particular medical officer assigned to him for any great length of time, but preferred to have another medical officer sent to him.

Mr. Marsh: I have no doubt that exists.

The Chairman: I see that France has two generals in the veterinary department.

Colonel Huidekoper: The forces in France and Germany have been increased 40 per cent. since this book was published.

Mr. Capron: I have been trying, Doctor, as you have gone along, to see if I could get into my mind the reasons which you give for the establishment of a separate bureau; and I have put them down in the way that I will read to you. See if I understand you correctly: "The examination of applicants for admission and for promotion; the inspection of animals at time of purchase, and periodically afterward; the prevention of disease; the proper supply of medicines and implements, and a bureau for the promulgation of new theories in regard to practice as they may develop in further and better knowledge." Is that correct?

Colonel Huidekoper: Yes, sir.

Mr. Capron: Those things would result from the establishment of a bureau, and would never come——

Colonel Huidekoper: They would never come from the simple employment of individuals any more than in building a house, where you require different classes of work for mortar work and carpentry, you cannot get along without a foreman to see that everything works harmoniously.

Mr. Capron: Or an architect to inspect the whole thing after the house is finished?

Colonel Huidekoper: To see that it is properly done; yes.

Mr. Lentz: It is your idea, Doctor, that a man, when he gets into a corps, or into the service, should remain there for life? You speak of having a bureau, and having an organization so as to determine the efficiency of the different men. Now, suppose a man proves a failure after he has passed an examination and been admitted?

Colonel Huidekoper: If he does not do his duty, he can be gotten rid of.

Mr. Lentz: How?

Colonel Huidekoper: By court-martial, on charges of inefficiency. As you will see, this bill provides for a series of four examinations, and a more thorough course of examination for promotion than exists in any other department. The Medical Department has but one, and then a final one for majority. In this case, each promotion is to be (if you will look at the wording of the bill) a "satisfactory competitive examination," to pick out the best men for each promotion.

Mr. Lentz: Satisfactory to whom; simply to the Secretary of War?

Colonel Huidekoper: To the board of examiners.

Mr. Marsh: Who compose that board of examiners?

Colonel Huidekoper: That board will be appointed by the Secretary of War, sir. The present board is made up of two cavalry officers—that is, under the old law—and a veterinary surgeon from the Department of Agriculture. For the elementary medical studies, I should say that a surgeon from the Medical Department should be on the board, for examination in such things as bacteriology, the use of the microscope, chemistry, physiology, and the principles of medicine, which are common to both branches.

Mr. Lentz: Is it not a fact, Doctor, that the tabulating of the results of this kind of work would probably be more serviceable to the farmers than that which is now done by the Agricultural Department?

Colonel Huidekoper: It would be the only means of getting information on this subject, so as to enable us to economize and save money. To-day, when the Quartermaster-General sends an enormous quantity of supplies out to Manila on the requisition of a quartermaster the requisition is unquestionably written in the first instance by a veterinary surgeon who does not belong to the Army, and who cannot officially sign a requisition. The veterinary surgeon in Manila writes out an immense list, on which the names of twenty drugs are misspelled, and the quartermaster signs that requisition. This large quantity of drugs is sent back to Manila, and there is no record of what animals are sick, what they die of, or of the utility of sending these supplies out there, which information such a service as this would give.

Mr. Marsh: That is due to the want of competent veterinarians in the Army at the present time, is it?

Colonel Huidekoper: Yes; and to the want of system. They are civilians. They cannot sign requisitions. The quartermaster has to do it.

If you will allow me to cite just one case, I will say that when the regular cavalry went to Chickamauga in the spring of 1898, some three veterinary surgeons went there with them. Only one had any instruments of any kind whatever, because the other two had left regimental quartermasters who were responsible for those instruments, and would not let them go out of the post from which they came. The regimental quartermaster, in such case, is the one who makes requisition for the instruments, and loans them to the veterinary surgeon each time he wants to use them. The veterinary surgeon is not responsible for them; and these two veterinary surgeons had to go to the third one to get scissors and needle and thread to stitch up the wounds in the horses at Chickamauga.

Mr. Marsh: All that could be remedied without an independent staff corps, however, could it not?

Colonel Huidekoper: I myself do not see how an efficient organization could be obtained in any other way.

Mr. Lentz: What is the objection to a staff corps? If we were going to use the same number of men and the same amount of service, why not give them a separate organization and make them responsible?

The Chairman: Colonel Huidekoper's theory is that you should.

Colonel Huidekoper: I cannot see any other way of getting an effective organization.

Mr. Lentz: If we are going to have the same number of men in any event, I cannot see why that would not be the best plan.

Colonel Huidekoper: It seems to me that in doing that we would only be following the precedent set by every European country. As an example: Belgium, within the last seven years (in 1892), removed her veterinarians from the general sanitary department and made them a separate corps, because she found it necessary, as had also her neighbors, France and Germany.

Mr. Lentz: Doctor, you speak of a requisition being made for medicines or remedies from Manila. Did you see or examine the requisition yourself?

Colonel Huidekoper: Yes, sir; I went over it. I know the officers of the Quartermaster's Department very well; and just as a personal matter I was asked to go over this requisition to see what was necessary, and to see if it was a satisfactory requisition.

Mr. Lentz: That was what you were asked by whom?

Colonel Huidekoper: By the Quartermaster-General.

Mr. Lentz: Now, in your examination of that requisition, did it meet with your approval as to the proper proportions of the remedies?

Colonel Huidekoper: No; it was a requisition that contained proprietary medicines, such as "Listerine," that costs seventy-five cents a bottle, for the use of horses—a medicine that could be made up with the crude drug and sent out in a more compact form, and which, with the addition of so much fresh water and a bit of boracic acid, eucalyptol, or something of the kind, would make just as effective an article and answer the purpose just as well at a cost of a cent a bottle instead of seventy-five cents.

I recollect that same requisition contained numerous other drugs and proprietary medicines, or medicines in bottles, requiring to be sent from here to Manila in a very bulky form, which could have been sent in the crude form just as well. Take, for instance, tincture of iodine, put up in 8-ounce bottles. If we sent them crude iodine in a box, they could have made their own tincture of iodine (as alcohol is easily obtainable in Manila), instead of having it transferred in bottles, if the men had the proper outfit of instruments, materials, and supplies for the purpose. But when you compare the list of veterinary instruments, books, and medicines furnished the United States Army, which covers less than a page, with the complete supplies for a troop of cavalry, for a regiment, for the officers, and for headquarters, as given in the French regulations, you see that one is thoroughly systematic and the other is not.[1]

Mr. Lentz: Do you mean to say that, by reason of the want of system, we are now guilty of extravagance?

Colonel Huidekoper: Under the present system we are guilty of enormous extravagance, not only in the amount of medicine used, but in the loss of animals, for which there is no necessity. As medical officer of the First Army Corps I took to Porto Rico, under my own direction, 180 hospital animals. I had no authority to employ veterinary services. I fortunately found that I had in my hospital corps an enlisted man, who was a veterinary surgeon, from St. Louis—a very clever fellow, as he proved—and I made him an acting steward and put him in the ambulance company. He came to me for certain things, which I purchased out of my own pocket, but we could not get anything in large quantities, and I had to do what everybody else did. When animals were ailing I went to the quartermaster and drew so many good ones, and I turned back to him animals which with the slightest attention would have kept well, but which without the possibility of attention immediately got large sores and grew worse and worse. The easiest way to do, as everyone did, was to turn them over to the quartermaster and get fresh ones and let him take the responsibility of having them go to pieces.

In the case of the batteries at Coamo—Major Lancaster's battery—I happened to know all the officers personally; and I was making a medical inspection one day and they asked me if I would not give them half an hour for the purpose of looking at their horses. I did so, and as a result of that examination a captain went into the town and purchased out of his own pocket a few simple things for taking care of the sores of these horses, for which there had been no provision made, and which the farrier of the battery ought to have had (and in every other army would have had) right in the caisson of one of the guns, or in what is known as the veterinary caisson, which goes with every battery.

Mr. Lentz: What proportion or percentage of the requisition of which you spoke, made for Manila, for instance, could have been saved through judicious distribution of the packages and judicious selection of the articles, in accordance with your suggestion, instead of sending them in the form they were asked for?

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[1] Reference was here made to copies of the detailed regulations of the Veterinary Service in the French, Belgian and other armies, which were shown in evidence.

Colonel Huidekoper: I recollect that out of a long three-page requisition (written on three pages of legal cap, with each line filled) there were some dozen or fifteen articles that were absolutely unnecessary, and a half a dozen or a dozen more that could have been put up in less expensive form than that called for, and in a form which would have been easier to handle. On the other hand, there were certain essential things that were left out.

DETROIT'S TRIUMPH. THE CENTRAL WEST IN LINE.

THE Detroit meeting is now a matter of history. It has been said that no country makes history faster than America. Surely everyone must be willing to accept this as true of our profession.

Less than ten years ago the A.V.M.A., then the U.S.V.M.A., planned for a meeting in Chicago, and then succeeded, through the untiring efforts of the veterinary journals and the profession in the East, of carrying there a large delegation of the members, to which was added a goodly attendance from the Central West, and then dated the success of a wider territory of Association influence. To-day a very large percentage of our membership is west of the Allegheny Mountains; then 75 per cent. was east of this dividing line. Scarcely ten years have gone by, and 1900 finds us in the region of the Great Lakes, there to hold one of the most successful meetings in the Association's history.

Think of adding in that unknown territory, so far as Association gatherings are recorded, nearly sixty new members, and losing scarcely fifteen from all causes! Surely such a growth from a membership ten years ago of less than a hundred, to nearly five hundred now, is an evidence of rapid history-making in Association progress and advancement.

WHAT SHALL WE DO WITH OUR VICE-PRESIDENTS?

TEN years ago our National Association, with its limited membership and circumscribed territory, found one Vice-President rather an ornamental official. To-day, in its broadened geographical lines, its widened sphere of usefulness, it has decided that it needs five. While there may be room for a difference of opinion as to whether we shall regard them from a purely geographical position, or the personal popularity in numerical order as to the number of votes received by each, or a stepping-stone to the Presidency of our national organization, surely with so many burning problems for us to solve, these positions should no longer be regarded as purely honorary ones, but they should be five great centres of influence and power for the better completion of our work. Our growth being so fast, our membership multiplying with such dangerous rapidity, our great country's geographical character, all point to the planning of certain aspects of our work that might well be done by those upon whom the Association's choice falls for these places.

What will our Association do to garner the harvest that awaits our gathering from such worthy laborers in the field of veterinary medicine?

THE PASSING OF THE OLD GUARD.

YEAR by year, as our Association assembles in the great cities of our land, and the pilgrimages now reaching nearly two-score in the yearly milestones we have passed, the assemblage of the great men who have led veterinary advancement lessens, and the absence of many faces, so familiar to our professional gatherings, grows more and more numerous. When one gazes to-day on the Association group of faces and notes the rapid changes of five, ten, and fifteen years, there are many sad thoughts awakened, and memories dear mingled with regret are wont to rise. Those who yearly prize the photographic group will look in vain for many faces that made in years gone by our place and position sure. The Detroit group has fewer faces from among the old guard than any of its predecessors. Perhaps some of those who yet feel young in membership are now becoming the old guard, and the faces they loved to look upon, the leaders they were proud to follow, the charms of those who fathered this grand Association in 1863, are still to be remembered in the hour of our greater numerical strength, and the value and the peculiar force of the strong fraternal feelings that welded the early membership so firmly should not be forgotten. Its measure of usefulness then had an added wealth in the strong ethical relations they bore to the community at large and fostered among themselves. A newer era in these more modern days has chilled in some measure these strong fraternal relations. The wider circle has dimmed the ethical glass through which we peer, and the spirit of commercialism has not left even our calling without its dangerous imprint.

While these finer lines of ethical commercialism have been drawn, have we not drifted away from strong moorings, that gave safety and refuge from professional dangers, that the strong and rigid rules of to-day are not altogether a barrier of defence.

Let us not forget the old guard in our feeling of greater strength. Let us cherish the charms of their strong fraternal feelings. Let there linger in memory the social bond that made memorable their annual and semi-annual reunions, and while facing the newer and broader problems confronting us to-day, let us cherish the memories that surround Association history as written by the old guard.

ATLANTIC CITY IN 1901.

FLUSHED with the victory of one of the greatest triumphs in Association history—the amalgamation of three State societies in one strong body—New Jersey feels that there is yet one thing needful for the completion of the glory of this union, and that is a visit of the American Veterinary Medical Association in 1901. They offer as a convention city the most wonderful seaside Mecca in the world—Atlantic City. They tender, through the generous spirit of Captain John Young, an ocean pier for the meeting-place, with every facility for convention work, and every attraction of an ocean resort that has charmed and entertained every profession and calling, every strata of society that has passed through the hospitable door of a city whose latch-string is ever out. New Jersey has never had a meeting, and her claims and influence will be potential in the battle for place in 1901. The President of her State Association is known among the profession as a tireless worker, and a stronger Association advocate is not known among his colleagues; and he will go in to win, backed by his organization, who will only know defeat when the vote is cast and their defeat consummated. Other convention cities for 1901 will need to be up and doing and work early and late.

ANOTHER IN THE FOLD.

Veterinary journalism, with its charms and fascination, has budded forth in the newer Mecca of Association circles ot Michigan.

It comes forth full of fire and with a show of metal steeled for every fire, and an armor-plate that will win victory from every antagonist.

It is backed by one of the newer veterinary schools, and its battles will be theirs to fight. Its enemies theirs to conquer and humiliate in defeat.

It will fight the alien veterinarian of our land and cry aloud for the protection of the American citizen veterinarian.

It will urge legislation within the borders of its own State and in every other Commonwealth that shall drive out those who have ignored citizenship of these United States.

It will sustain and uphold State officials in their work of investigation only when their work will bear personal scrutiny and the test of its editors.

It is a good deal like a rooster who went forth "'lectioneering for a licking," and in these warm days of disputes it will be very apt to be accommodated.

It is modest only in its typographical make-up, but one so full of vigor for fighting its way is sure to attract attention and find enemies ready for battle on every side.

It may find the path of veterinary journalism strewn with ungarnered laurels, its victories and triumphs a crown of thorns, and it will surely realize the truth of that Ohio man's fate who trifled with the heels of a mule; he wasn't so all-fired good-looking thereafter, but he had a durned sight more good sense.

The programme of papers and the clinics and other attractions of the Missouri State Veterinary Association meeting, October 3d and 4th, at St. Louis, promises to make it one of the most important meetings ever held in that State. State legislation will be considered and a legislative act will be considered to be presented at the next session of the Legislature. The Journal wishes the profession a successful meeting, and urges all Missouri veterinarians to attend the meeting.

THE Messrs. J. B. Lippincott Company, of Philadelphia, who have placed a number of books upon the market of special interest to the veterinarian, among others the *Exterior of the Horse* will erect a magnificent publishing-house on East Washington Square, tearing-down for this purpose several old mansions closely associated with the early history of the "City of Brotherly Love."

ARMY VETERINARY SERVICE.

NEW JERSEY is going to be felt as a powerful influence in army legislation at Washington the coming session of Congress. The President of the Veterinary Medical Association of New Jersey has appointed a member of the profession from each congressional district to form a central committee of eight, with that active veterinarian of the Essex Troop, Dr. T. Earle Budd, as chairman. This committee will be ably assisted by some three to five veterinarians in each representative district, and there will be a demand for professional recognition with rank that will be backed by so powerful a sentiment that it will not be denied. The following are the committees:

At Large: Sixth congressional district, Dr. T. Earle Budd, chairman, 90 Park St., Orange; first congressional district, Dr. John O. George, Camden; second congressional district, Dr. L. P. Hurley, Hopewell; third congressional district, Dr. E. L. Loblein, New Brunswick; fourth congressional district, Dr. M. M. Stage, Dover; fifth congressional district, Dr. Wm. Herbert Lowe, 188–190 Ellison St., Paterson; seventh congressional district, Dr. T. E. Smith, 309 Barrow St., Jersey City; eighth congressional district, Dr. W. F. Harrison, Bloomfield.

First Congressional District: Camden, Cape May, Cumberland, Gloucester, and Salem Counties. (Congressman Loudenslager, Woodbury, Rep.) Dr. Wm. B. E. Miller, Camden; Dr. John O. George, Camden; Dr. Charles E. Magill, Handonfield; Dr. Edgar H. Landes, Camden.

Second Congressional District: Atlantic, Mercer, Burlington, and Ocean Counties. (Congressman Gardner, Atlantic City, Rep.) Dr. A. T. Sellers, Atlantic City; Dr. L. P. Hurley, Hopewell; Dr. G. F. Harker, Trenton: Dr. James M. Mecray, Maple Shade.

Third Congressional District: Somerset, Middlesex, and Monmouth Counties. (Congressman Howell, New Brunswick, Rep.) Dr. E. L. Loblein, New Brunswick; Dr. S. Lockwood, Woodbridge; Dr. B. F. King, Little Silver; Dr. E. R. Voorhees, Somerville: Dr. H. W. Read, Freehold.

Fourth Congressional District: Sussex, Warren, Hunterdon, and Mercer Counties. (Congressman Salmon, Boonton, Dem.) Dr. M. M. Stage, Dover; Dr. John M. Mitchell, Madison; Dr. G. P. Ellice, Morristown; Dr. H. W. Dustan, Morristown; Dr. A. H. McIntosh, Summit.

Fifth Congressional District: Passaic and Bergen Counties. (Congressman Stewart, Paterson, Rep.) Dr. S. S. Tredwell, Englewood; Dr. J. B. Finch, Ramsey; Dr. John Kehoe, Lyndhurst; Dr. R. O. Hasbrouck, Passaic; Dr. J. Payne Lowe, Passaic.

Sixth Congressional District: City of Newark and the township of East Orange, Essex County. (Congressman R. Wayne Parker, Newark, Rep.) Dr. T. Earle Budd, 90 Park St., Orange; Dr. Werner Runge, Newark; Dr. J. W. Hawk, Newark; Dr. Jas. T. Glennon, Newark; Dr. Andrew G. Vogt, Newark.

Seventh Congressional District: All of Hudson County excepting City of Bayonne. (Congressman Daly, Hoboken, Dem., deceased.) Dr. T. E. Smith, 309 Barrow St., Jersey City; Dr. Elisha Matthews, Jersey City; Dr. R. W. A. English, Jersey City.

Eighth Congressional District: The County of Union, the City of Bayonne (Hudson County), and all of the County of Essex excepting the City of Newark and the township of East Orange. (Congressman Fowler, Elizabeth, Rep.) Dr. F. A. Zucker, Elizabeth; Dr. M. O. M. Knott, Plainfield; Dr. W. F. Harrison, Bloomfield; Dr. James McDonough, Montclair; Dr. Raymond B. Smith, Montclair.

Anthrax has made its appearance in Eastern New Jersey among some very valuable herds of cattle. Dr. T. B. Rogers, Woodbury, has been placed in charge of the outbreak.

The new English journal on "Hygiene," which will appear about January 1, 1901, will have the assistance of Professor Leonard Pearson as one of the corps of collaborators.

IMPROVEMENTS IN THE BUREAU OF ANIMAL INDUSTRY.

THE service of the Bureau of Animal Industry is constantly being made more desirable for veterinarians. Beginning with this year, a leave of absence of two weeks with pay is allowed each year.

Veterinarians secure appointment at $1200 per annum almost as soon as they have passed the civil-service examination. Those who passed the regular examination in April were all appointed within a few weeks of the time their papers were passed upon. A special examination was held in July, and all who passed then have received appointments. The regular fall examination will be held at various points throughout the country on October 23d, and persons desiring to take the same should make application to the Civil-Service Commission at Washington at least two or three weeks in advance of that date.

There are now in the Bureau service 275 veterinarians, and further appointments will be made as soon as the next civil-service examination has been held.

The following promotions have been made since January 1, 1899:

Dr. Louis Abel, New York City,	from	$1200	to	$1400
Dr. Harry B. Adair, Kansas City,	"	"		"
Dr. Leslie J. Allen, Kansas City,	"	"		"
Dr. O. G. Atherton, Chicago,	"	"		"
Dr. Lewis R. Baker, Hammond, Ind.,	"	1400	to	1600
Dr. S. E. Bennett, Kansas City,	"	1600	to	1800
Dr. Thomas A. Bray, El Paso, Texas	"	1200	to	1400
Dr. Lowell Clarke, South Omaha,	"	"		"
Dr. Louis P. Cook, Cincinnati,	"	"		"
Dr. S. E. Cosford, Lincoln, Neb.,	"	"		"
Dr. E. T. Davison, Leavenworth, Kansas,	"	"		"
Dr. L. Enos Day, Waterloo, Iowa,	"	"		"
Dr. F. L. DeWolf, Chicago,	"	"		"
Dr. George Ditewig, Davenport, Iowa,	"	"		"
Dr. O. E. Dyson, Chicago,	"	1600	to	1800
Dr. A. T. Everett, South Omaha,	"	1200	to	1400
Dr. George C. Faville, Norfolk, Va.,	"	1400	to	1600
Dr. Nathan K. Fegley, Jersey City,	"	1200	to	1400
Dr. James Fleming, Chicago,	"	"		"
Dr. Lewis K. Green, Detroit,	"	"		"
Dr. H. W. Hawley, Chicago,	"	"		"
Dr. F. W. Hopkins, Cairo, Ill.,	"	"		"
Dr. U. G. Houck, Chicago,	"	"		"
Dr. E. N. Hutchinson, Portland, Ore.,	"	"		"
Dr. G. A. Johnson, Sioux City, Iowa,	"	"		"

Dr. James Johnston, Boston,	from	$1200	to	$1400
Dr. Benj. F. Kaupp, Kansas City,	"	"		"
Dr. Charles Keane, Los Angeles, Cal.,	"	"		"
Dr. James S. Kelly, Quincy, Ill.,	"	"		"
Dr. F. D. Ketchum, South St. Paul,	"	"		"
Dr. R. R. Letts, New York City,	"	"		"
Dr. A. McBride, Jersey City,	"	"		"
Dr. Harry G. Moore, South St. Joseph,	"	"		"
Dr. W. J. Murphy, Brightwood, Mass.,	"	"		"
Dr. Don W. Patton, South Omaha,	"	"		"
Dr. A. G. G. Richardson, Boston,	"	1600	to	2000
Dr. O. W. Snyder, Eau Claire, Wis.,	"	1200	to	1400
Dr. R. P. Steddom, Washington,	"	"		"
Dr. Walter J. Stewart, Milwaukee,	"	"		"
Dr. E. L. Volgenau, New Haven,	"	"		"
Dr. J. Wilson, South Omaha,	"	"		"
Dr. Morris Wooden, Chicago,	"	1400	to	1800
Dr. C. H. Zink, Buffalo,	"	1400	to	1600

REPORT OF COMMITTEE ON ARMY LEGISLATION.[1]

YOUR committee which was appointed to urge suitable legislation for the improvement of the veterinary service in the United States Army, and for the recognition of veterinarians in that service as representatives of a learned profession, would respectfully report that they have labored diligently to secure the desired objects, and that a satisfactory measure is now pending.

It is not necessary to go into details concerning the opposition which has been experienced. The opposition which has been most determined and most difficult to overcome has originated in the very department whose service we have been endeavoring to strengthen and perfect—the one department which would be benefited by this legislation. The cause of this opposition appears to be principally the old narrow-minded and un-American prejudice existing against veterinarians among certain of the army officers, principally the lieutenants. There is undoubtedly a feeling among this order of gentlemen that when a man becomes a lieutenant he belongs in a class by himself; that he is superior to and made of finer clay than ordinary mortals, and subject to contamination if he associates with them on equal terms. He regards himself, like the Chinese sovereign, as the Son of Heaven, to whom all should bow down and render obeisance. He expects to be gazed at from afar, admired, feared; but he cannot endure the idea of equality, familiarity, least of all with veterinarians. According to his philosophy, if one son chooses for his profession the destruction of his fellow-man, and in due time becomes a second lieutenant, and another son in the same family chooses as his lifework the amelioration of suffering among God's dumb creatures, the latter, though equally refined, equally educated, equally intelligent, is unfit to associate with the former.

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[1] Thirty-seventh Annual Meeting of A. V. M. A., Detroit, September, 1900.

This absurd self-conceit, arrogance, and bumptiousness, notwithstanding that it has done much to render the army unpopular with the masses of our people, and is doing its part toward preventing an increase commensurate with the development and needs of the country, has had its influence in the War Department and in Congress, but can never secure the support of a majority of the representatives of the American people. The importance of an organized and competent veterinary service in the army is becoming more apparent every year, and every time a Senator asserts that a captain knows more about a horse than does a veterinarian he inspires his listeners to ask mentally, if not orally, Why, on the same principle, does not a captain know more about a man than does a surgeon? Why does he not know more about engineering than does an engineer? This is an age of specialties, and a captain cannot be his own surgeon, his own engineer, his own veterinarian, and at the same time attend to his other duties. This should be self-evident to the least experienced person. Fortunately these petty and antiquated arguments, though repeated *ad nauseam*, have not had much influence in the hall of Congress. It is no longer the arguments which must be answered; it is the personal appeals which must be counteracted.

A bill has passed the Senate providing for a properly organized veterinary corps which would supply veterinary service for the cavalry, the artillery, the transportation department, and the military schools. This bill has gone to the House of Representatives, and is now in the Committee on Military Affairs. While the Secretary of War does not favor the legislation establishing a veterinary corps, he has recommended that the veterinarians in the cavalry regiments be given the rank of second lieutenants. This is a distinct advance for the War Department, and is extremely encouraging for all who have worked these many years to secure some amelioration of the army veterinarian's condition.

This legislation has therefore reached the critical period. There has never been a time when the conditions were more encouraging for success. There has never been a time when there was a prospect of accomplishing so much. There has never been a time when the same amount of work would be as effective as it will during the next six months.

Your committee, created to further the cause of army veterinary legislation, therefore, appeals to this Association and to the veterinary profession throughout the country to make a supreme effort now, while the prospects are so good, and to leave nothing undone which will contribute to success. Every one of the 8000 veterinarians in the country should feel a personal interest in this legislation. It secures the full recognition of the Government for the veterinary profession. It raises the standard of the veterinary profession in this country to the same level which it has reached in other civilized countries. It provides an army veterinary service of which we may be proud, and to which every graduate might aspire with the feeling that he has chosen an honorable and meritorious lifework. It perfects our army organization and gives the Government animals the same skilful and merciful treatment which has long since been accorded them by other intelligent and humane nations.

This is a part of the great cause for which every true veterinarian has studied and labored, of which he has pondered by day and dreamed at night, for which he has lived and for which he is willing to die. Therefore let every individual veterinarian say to himself: This is the opportunity of *my* life; *I* will do *personally* everything in my power to secure the success of this effort *in the cause of humanity*, this effort to strengthen the army of *my country*, this effort to increase the standing and reputation of *my profession*.

D. E. SALMON, *Chairman*,
R. S. HUIDEKOPER,
W. HORACE HOSKINS,
A. W. CLEMENT,
M. STALKER.

SOCIETY PROCEEDINGS.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

MINNEAPOLIS, MINN., JULY 11, 1900.

The seventh semi-annual meeting was called to order by the President, S. H. Ward, at 10 A. M., at the Holmes Hotel, Minneapolis. The following members responded to roll-call: Drs. C. C. Lyford, S. D. Brimhall, J. G. Annand, A. A. Keyes, J. S. Butler, and M. J. Saxton, of Minneapolis; M. H. Reynolds, St. Anthony Park; L. Hay, Faribault; K. J. McKenzie, Northfield; S. H. Ward, St. Cloud; W. Amos, Owatonna; J. N. Gould, Worthington; A. F. Lees, Red Wing; H. C. Lyons, Hutchinson; H. C. Peters, Litchfield; W. A. Sproule, Waseca; T. Falconer, Glenwood.

The minutes of the previous meeting were read and accepted. The Treasurer's report was read and accepted. The following applicants were balloted upon and accepted as members of the Association: Drs. J. G. Harris, J. W. Cook, and J. McKay, of Duluth; Drs. R. Lapointe and J. Murray, of Le Sueur, Dr. D. M. McDonald, of Brainerd; Dr. J. P. Foster, of Bangor, S. D.

Communications from Drs. F. H. Farmer, M. S. Whitcomb, and B. Lambrechts, were then read, each regretting his inability to attend.

The meeting then adjourned for dinner.

AFTERNOON SESSION, 1.30 O'CLOCK.

Dr. W. Amos gave his report on veterinary colleges, bringing out some important facts in connection with some of our veterinary colleges, also stated that two new veterinary colleges had been instituted since our last meeting.

Dr. C. C. Lyford reported for the Committee on Legislation and Empirics. The doctor read a letter from the County Attorney of Hennepin County, stating that in his opinion the law regulating the practice of veterinary medicine and surgery in this State was valid and all right, but still did not advise carrying the McCulloch case to the Supreme Court. At this juncture a Mr. Mercer, one of Minneapolis' most prominent attorneys, was called in to explain a few points in regard to the wording of the law. A lengthy discussion followed. On motion it was decided to drop the case against Dr. McCulloch and not carry it to the Supreme Court, but instead, that a new case be brought to fit under Section 8 of the law, in Ramsey County, and that a new committee be appointed to look after same. Committee appointed was: Drs. R. Price, B. A. Pomeroy, G. A. Dallamore.

Dr. S. D. Brimhall next reported for Committee on Infectious Diseases, stating the number of cases of glanders reported since last meeting, number quarantined, number tested, and number condemned. Also number of cases of tuberculosis reported, number tested, and number condemned. The doctor reported two outbreaks of anthrax. Malignant catarrh had been reported from three districts, being from Steele, Beecker, and Blue Earth counties. Blackleg seemed scattered through a good many different parts of the State.

Dr. Sexton reported for the Committee on Finances. A communication was read from Dr. R. Price, who was then at St. Luke's Hospital, in St. Paul, in which he gave his experience on the operating-table while being operated upon for varicose veins. Dr. Reynolds gave a lengthy report on recent advances in veterinary surgery, which was both interesting and instructive. Dr. S. D. Brimhall gave an extended report on recent veterinary literature, touching on bacteriology. Dr. J. N. Gould reported recent veterinary literature bearing upon medicine.

The meeting then adjourned for supper, after which several autopsies were held on glandered horses, at Carlson Bros., on First Avenue, North. The balance of the evening was spent in the discussion of glanders and tuberculosis and in the report of cases.

THURSDAY, JULY 12TH, 9 A. M.

The members met at Dr. C. C. Lyford's Infirmary for the following clinics: Plantar neurectomy, Dr. L. Hay and Dr. J. G. Annand; castration of a cryptorchid, Dr. J. N. Gould; plantar tenotomy, Dr. K. J. McKenzie; operation for capped hock, Dr. C. C. Lyford.

Thursday afternoon was spent at Lake Minnetonka, where the Twin City members had generously provided an outing for the rest of the members and their wives. The first-class steamboat, "The Victor," having been previously chartered for the afternoon, we were given a fine boat-ride; supper was served on the boat. This was considered a good way to bring the members of the veterinary profession and their families together so that they might become better acquainted. To say that a pleasant afternoon was spent does not express it; each returned to his home feeling that his time had been pleasantly and profitably spent at this meeting.

K. J. MCKENZIE,
Secretary-Treasurer.

ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION.

The eleventh semi-annual meeting, at Mattoon, Ill., August 8th, was called to order by President Dr. V. G. Hunt. Roll-call and reading of minutes of previous meeting.

President Hunt then delivered a masterly and touching address to those present, receiving much applause from the members.

By invitation of President Hunt, Dr. Martin, of Kankakee, then gave the Association a talk on "Spavin," defining the location and characteristics of this disease, its causes, and the probable outcome, giving his treatment.

Dr. Travis next read a paper on "Laryngitis," giving a careful account of the causes, symptoms, and results of this disease, and stating his mode of treatment. Responded to by Dr. V. G. Hunt. (Discussion among the members regarding the efficiency of tracheotomy in the treatment of laryngitis.) Dr. S. H. Swain, Dr. Martin, and Dr. John Osborne also responded.

Dr. S H. Swain was next on the programme for a paper on "Omphalitis," giving carefully its characteristics, causes and symptoms—also its hygienic and medical treatment. Responded to by Dr. G. G. Baumgartner. Dr. V.

G. Hunt gave a history of a case in his practice. Dr. N. P. Whitmore, of Gardner, responded.

Discussion on the efficiency of the present law regulating the practice of Veterinary Medicine and Surgery in the State of Illinois and the possibility of an amendment. This subject was very generally and warmly discussed by all present.

"Contagious Abortion" being next, by Dr. John Osborne. Dr. Osborne having a severe cold, his paper was read to the Society by the Secretary. This paper was responded to by Dr. Martin, of Kankakee and Dr. V. G. Hunt, and discussed generally by the Society.

Dr. V. G. Hunt followed next with an excellent paper on "Enteritis," giving graphically his treatment and the probable outcome.

Dr. S. H. Swain recited the history of a case of "Tetanus," giving his experience with the carbolic-acid treatment.

On motion the meeting was then adjourned until 8 A. M., August 9, 1900.

THURSDAY, AUGUST 9, 1900.

The applications for membership of Dr. Marsh, of Illiopolis, Dr. T. D. Skeen, of Garland, Ill., and Dr. N. P. Whitmore, of Gardner, Ill., were then read by the Secretary, and applications referred to the Committee on Membership, who examined into the proficiency and eligibility of the candidates.

The Committee on Membership reported favorably on the application of J. W. Marsh, of Illiopolis and N. P. Whitmore, of Gardner. The application of T. D. Skeen, of Garland, Ill., was tabled until the next meeting for lack of evidence.

On motion, the report of the committee was accepted. On motion, the Secretary cast the vote of the Association. Dr. Hunt then introduced the new members to the Association and the Association extended the right hand of fellowship to the new members.

On motion, the location, date, and place of next meeting were fixed in Decatur, Ill., at the Brunswick Hotel, on Wednesday and Thursday, January 10 and 11, 1901.

It was moved and seconded that the Chair appoint a committee to draft a set of resolutions censuring the Board of Live-stock Commissioners and Veterinary Examiners for the wholesale manner in which they have granted licenses to practice in the State of Illinois. Dr. N. P. Whitmore, Dr. S. H. Swain, and Dr. S. D. Brown were appointed on this committee. The committee reported the following resolutions:

Your Committee on Resolutions of Censure of the Board of Live-stock Commissioners and the Board of Veterinary Examiners of the State of Illinois, beg to report the following:

Whereas, a law has been passed known as the Veterinary Practice Act; and

Whereas, the law made it obligatory on the part of the Live-stock Commission to appoint a State Board of Veterinary Examiners to inquire into the qualifications of applicants for license to practice veterinary medicine and surgery; and

Whereas, M. H. McKillip, James Robertson, and Chas. H. Merrick were appointed as such Board of Veterinary Examiners; and

Whereas, the law clearly defines the duties of the Board of Veterinary

Examiners as to the examination of applicants not entitled to practice by reason of not being in possession of a diploma, or of not having been in practice three consecutive years in the State of Illinois; and

Whereas, the law requires that such applicants shall be examined in the following subjects, to-wit: veterinary anatomy, surgery, practice of medicine, obstetrics, pathology, chemistry, veterinary diagnosis, materia medica, therapeutics, physiology, sanitary medicine, and meat- and milk-inspection, and such other branches as the Board may prescribe; and

Whereas, it is well known by the members of this Association that the Veterinary Board have entirely ignored the law in making examinations, and have issued license to many persons of bad moral character, and who were entirely incompetent to practice, having neither practical nor literary knowledge of the science of veterinary medicine and surgery, thereby enabling such incompetent persons to point to the examination prescribed by law and which they are supposed to have passed; and

Whereas, many such applicants of bad moral character, and who were known to be incompetent to practice, have been protected by men of good reputation and of known truth and veracity; and

Whereas, said Board have overridden said protests, and have knowingly violated the letter and spirit of the law, and have made the license fee the only qualification upon which to issue a license to practice; therefore,

Resolved, that we, the members of the Illinois Veterinary Medical and Surgical Association, do condemn, censure, and deplore the conduct of said Board of Veterinary Examiners in the violation of their duties under the law, and further request their immediate removal from office.

S. H. Swain, V.S.,
N. P. Whitmore, M.D.,
S. D. Brown,
Committee.

The treatment of "Dysentery" was then discussed by the members, and the meeting was adjourned until January 10 and 11, 1901.

W. A. Swain,
Secretary.

The ninth annual meeting of the Missouri Veterinary Medical Association will be held at St. Louis, October 3d and 4th, and all veterinarians whether members of the Association or not, are cordially invited and urged to attend this meeting. Programme as follows: October 3d, "Surgical, Clinic, Consisting of the More Difficult Operations by the Latest Methods of Operating." Operators: Drs. R. C. Moore, Kansas City; F. W. O'Brien, Hannibal, and W. E. Martin, Perry, Mo. Papers, "Acute Bowel Trouble," by Dr. H. Bradley, Windsor; "Needed Veterinary Legislation in Missouri," Dr. Charles Ellis, St. Louis; "Influenza," Dr. E. Brainard, Memphis; "Canine Distemper," Dr. T. J. Menestrina, St. Louis; (subject not given), Dr. C. W. Crowley, St. Louis; "Parturient Paresis in the Cow," Dr. J. W. Connaway. Reports of cases. In the evening visit to St. Louis Exposition, entertainment by St. Louis veterinarians. October 4th, papers, "Infectious Ulcers of Vulva of Cattle," by Dr. C. Miller, St. Louis; "A Bacillus from an Infectious Vulva Disease of Cattle," Dr. J. W. Parker, Kansas City; (subject not given), Dr. D. F. Luckey, Columbia; a report of the last meeting of the A. V. M. A., by its secretary, Dr. S. Stewart Kansas City; "Laminitis," Dr. L. M. Klutts, Clinton; "My Experience with Schmidt's Treatment of Parturient Apoplexy," Dr. F. W. O'Brien; (subject not given), Dr. T. E. White, Sedalia. Reports of the use f blackleg vaccine. Afternoon, a visit to the St. Louis Fair, under the direction of the veterinarians of St. Louis. Pathological exhibit.

THE twenty-eighth annual meeting of the American Public Health Association will be held at Indianapolis, Indiana, beginning October 22d, and continuing until October 27, 1900.

AMONG THE BOARDS OF EXAMINERS.

MICHIGAN STATE VETERINARY BOARD. This Board met at the Hotel Butler, Lansing, August 7th, for its regular semi-annual meeting for the examination of non-graduates for registration, and also the examination of affidavits of graduates. There were in all 120 applications before the Board: 90 of which were graduates, representing nine different schools, and 30 non-graduates who had to take the examination, 3 of whom passed. The subjects on which they were examined were: Anatomy, Pathology, Physiology, and Materia Medica. When the Board were making out certificates they were compelled to refuse granting the documents to certain applicants, otherwise meeting the provisions of the law, because they have not yet been naturalized; the fact that they have declared their intentions of becoming citizens makes them aliens notwithstanding. After declaring his intentions, the alien must remain in this country two years before being naturalized. Naturalization papers cannot be granted unless the alien has been a resident of this country for five years previously. The Secretary of the Board has authority from the Attorney-General to refuse granting certificates to those who in their applications specified that they had merely declared their intentions of becoming citizens. Graduates of the Ontario Veterinary College, since January 1, 1900, are required to pass an examination before the Board.

W. W. THORBURN,
Secretary, Lansing, Mich.

NEW YORK STATE VETERINARY BOARD.—The following eleven have passed the examination and received the license of this Board from September, 1899, to June, 1900, inclusive: Drs. Francis C. Edmonds, Charles B. Potter, W. Lincoln Bell, Adolph Eichorn, Daniel J. Mangan, Charles N. Jewell, John W. Corrigan, Clarence L. Barnes, Grant S. Hopkins, William J. Mitchell, and Louis Juliand, of New York State, and representing the New York College of Veterinary Surgeons, New York State Veterinary College, McGill University, Veterinary Department, and New York American Veterinary College.

PERSONALS.

Dr. F. E. Anderson, of Findlay, Ohio, combines the dealing in horses and stable equipments with his professional work.

Dr. Walter L. Burt, now of Portchester, N. Y., has added to his sales farm and stables a training department for the preparation of horses for the show ring.

Dr. Harry Walter, of the Trenton, N. J., Sanitarium, was a visitor to Philadelphia in May. He is now devoting his entire time to human practice in nervous diseases.

President Harger, of the Pennsylvania State Association, is a great favorite among the ladies of the "Quaker City," and when absent from college duties the boys are wont to say that the professor is filling an important mission.

Dr. Charles T. Goentner, of Bryn Mawr, Pa., is a tiller of the soil in conjunction with his veterinary duties, but finds the raising of corn and potatoes a slower method of gaining wealth than waiting professionally on canine and feline pets.

Dr. William Dougherty, of Baltimore, Md., is now the happy possessor of a trotter with a mark along the twenties. It is hard to win a real horse lover away from the trotter.

Dr. W. H. Meadors, of Kansas City, is a British veterinary inspector of horses being purchased in Texas, and is stationed at Denison, Texas.

Dr. T. Earle Budd, of Orange, N. J., is an admirer of the hackneys, and has in his stable Ruby 2d, a royally bred hackney stallion.

Drs. William H. and Bryer Pendry, of Brooklyn, take an active interest in building association affairs, and fill the rôles respectively of president and director in one of the borough's younger associations.

Dr. F. H. Osgood, of Boston, Mass., has been appointed brigade veterinary surgeon of the State militia, and has placed the work on a very high sanitary plane.

Dr. Benjamin D. Pierce, of Springfield, Mass., has gone on a trip to South Africa.

Dr. Reynolds recently presented a paper on "Live-stock Sanitary Work" at the annual meeting in Duluth of the Minnesota State Medical Society.

City Veterinarian Hart, of Philadelphia, finds time now and again to take a dip in the briny waters of the Atlantic Ocean, and when quietly resting on the boardwalk listens to what the wild waves are saying.

Dr. E. D. Hudson, of Gettysburg, Pa., fills the rôle of chairman of the finance committee of the Round Top Democratic Bryan Club.

Drs. D. E. Salmon, of Washington, D. C.; M. P. Ravenel, of Philadelphia; and J. I. Gibson, of Denison, Iowa, are members of the Committee on Animal Diseases and Animal Food of the American Veterinary Medical Association.

Dr. John T. Ferley, Jr., of Philadelphia, has been summoned to defend a $10,000 lawsuit for alienating the affections of one of Philadelphia's ladies.

Dr. W. Horace Hoskins, of Philadelphia, was among those at the college commencement of the New York American Veterinary College.

Dr. A. W. Clement, of Baltimore, Md., and Dr. F. H. Mackie, of Fair Hill, Md., were visitors to the Philadelphia horseshow.

Dr. M. Jacob, house-surgeon of the Veterinary Department of the University of Pennsylvania, recently successfully passed the civil-service examination of the Bureau of Animal Industry and has received instructions to report at New York under Dr. R. W. Hickman.

Dr. E. W. Hammond, of Montreal, Canada, has been acting in place of the Fellow in Bacteriology at the Agricultural College, Guelph, Canada, for several months.

Dr. Frank T. Shannon, of the Bureau of Animal Industry, has been transferred from Washington, D. C., to Seattle, Washington.

Dr. M. S. Lantz, formerly of Du Bois, Pa., has located in Chicago, Ill.

Dr. George Magee, of Uniontown, Pa., was a visitor to Philadelphia in August, incidental to the admission of his son at the Veterinary Department of the University of Pennsylvania.

Professor Andrew Smith is President of the Canadian Horse-breeders' Association. The Association proposes to hold an exposition in 1901 at Toronto.

Dr. Leonard Pearson, of Philadelphia, addressed the Guernsey Breeders' Association at Fulton Station, Lancaster County, in August.

Dr. John J. Repp, of Ames, Iowa, has an excellent article on the "Dangers of Meat and Milk when Animals are Tuberculous," in the *Philadelphia Medical Journal.*

The success of the Alumni of the College of Veterinary Medicine, Ohio State University, is again brought to notice by the recent appointments to the Government meat-inspection service of Dr. R. N. Mead, Grand Rapids, Ohio; Dr. W. F. Lavery, South Salem, Ohio; and Dr. H. J. Hammond, Akron, Ohio. Up to date, 48 per cent. of the graduates of this college hold official positions.

Dr. T. F. Moyle, of Waterford, Wis., will unite with Dr. W. E. A. Wyman, of the JOURNAL staff of collaborators, in the preparation of a special contribution on "Surgical Obstetrics" for a future number of the JOURNAL.

Dr. Wm. H. Wray, of London, Eng., is assisting our Government in the introduction of sweet potatoes in England and other European countries.

Dr. Wm. R. Andress, of Philadelphia, Pa., graduate of Veterinary Department University of Pennsylvania, class of 1900, has been appointed by the Government as meat-inspector at Kansas City, Kan.

Dr. Richard F. Powers, now of Portland, Ore., has just returned from Manila, P. I., where he held the position of chief veterinarian of the Department of Health. Dr. Powers returns to the United States on account of ill-health.

Dr. Wm. H. Lowe, of Paterson, N. J., Treasurer of the American Veterinary Medical Association, is enthusiastic over the project of taking the meeting to Atlantic City, N. J., in 1901.

Dr. E. H. Nodyne, of Sodus, N. Y., is manager of the Sodus Coach-horse Company.

Dr. J. C. McNeil, of Pittsburg, Pa., was among the boardwalk strollers at Atlantic City, N. J., early in September.

That veteran Association member, Dr. Wm. Dougherty, of Baltimore, Md., says the Detroit convention was the first shirt-waist meeting of the Association he had ever attended.

Veterinary Surgeon Desmond, formerly of Warnambool, is now at Adelaide, South Australia, and represents the Government Department as veterinary surgeon and chief inspector of cattle to the central board of health. Dr. Desmond was for a period bacteriologist at the Melbourne Veterinary College.

Dr. Edgar W. Powell, of Newtown Square, class of 1900, Veterinary Department University of Pennsylvania, has located at Oxford, Pa., succeeding Dr. McClure at the latter point.

Dr. E. B. Ackerman and wife, of Brooklyn, N. Y., visited Niagara Falls on their way to the Detroit Convention of the American Veterinary Medical Association.

Dr. M. E. Knowles, of Helena, Montana, and State Veterinarian for his adopted commonwealth, will make battle for the mayoralty of Helena under the Democratic flag.

Dr. R. R. Bell, of Brooklyn, N. Y., continues to make permanent investments in fair Virginia, where he recently added sixty acres to his rural estate.

Dr. Geo. White, of Nashville, Tenn., was a visitor to Detroit in the interest of his city, looking to better legislation regulating milk- and meat-inspection. He considers the Zenoleum sheep dip a very potent remedy.

Dr. Jas. L. Robertson, of New York City, spent several days at the farm of his friend, Dr. Eugene Burget, in Ohio, prior to their attendance at the annual convention of the A. V. M. A., in Detroit.

Dr. R. H. Harrison, of Milwaukee, Wis., is the proud possessor of his first son, and rumor hath it that this event caused his absence from Detroit.

Dr. J. C. Lacock, of Allegheny, Pa., finds the quietude of Ocean City, N. J., the place *par excellence* for a rest from the exactions of an active practice in the Smoky City.

Dr. H. F. Palmer, of Detroit, Mich., fills the rôle of veterinarian to the drug firm of Parke, Davis & Co.

Dr. T. B. Rogers, of Woodbury, N. J., is preparing a veterinary medical digest for the well-known firm of Messrs. H. K. Mulford Co., of Philadelphia.

Dr. P. F. Bahnsen, formerly of Fort Valley, Ga., has now located at Americus, Ga.

Dr. D. E. Kimmell, veterinarian and proprietor of St. James Hotel, Corry, Pa., will shortly remove to East Palestine, O., where he will enter into the practice of the veterinary science.

Dr. J. M. Carter, formerly of Chatham, Pa., has located in Philadelphia.

Dr. M. S. Lantz, of the Bureau of Animal Industry, has been transferred from the Union Stock Yards, Chicago, to the Quarantine Station at Pendleton, Oregon, where his special duties will be the looking after sheep "scabies."

Dr. Leonard Pearson, State Veterinarian, spent several days in Western Pennsylvania in September, investigating several reported outbreaks of rabies.

Dr. A. L. Parker has resumed practice at Providence, R. I., after an absence of one year spent at Riverdale, N. H., for the benefit of his health.

Dr. H. D. Gill, with his fast trotting mare "Rosalie," won the silver cup trophy at the Queen's County Fair in September. "Rosalie" is one of the very fastest pacemakers on the "Speedway."

Drs. Thomas B. Rayner, of Chestnut Hill; W. L. Rhoads, of Lansdowne, and W. Horace Hoskins, of Philadelphia, were present as delegates or visitors to the Veterinary Medical Association of New Jersey at the annual meeting at Atlantic City in September.

Dr. Coleman Nockolds, of the Grand Rapids Veterinary College, who successfully passed the army service examination, was assigned to the 1st U. S. Cavalry, and has gone to Manila, P. I.

Dr. Frank Standen, of Philadelphia, has returned from his European tour much improved in health.

Dr. A. T. Sellers will resume practice in Camden, N. J., early in October.

Dr. P. K. Jones, of Pittsburg, Pa., takes an active part in urging army legislation, and finds an avenue in the public press to assist the cause.

Dr. J. W. Petty, of Winston, N. C., has been on the sick-list for several months, but is now convalescent.

NOTES.

Mr. Lyman E. Albee, of Fitchburg, Mass., died recently from glanders, contracted in treating a glandered horse. A son is seriously ill from the same disease. The horse was a condemned one, but the owner persisted in treating him.

A Veterinary Lawyer.—Mr. Crimsonbeak: They call him a one-horse lawyer.

Mr. Yeast: How did he get that name do you suppose?

"Because he's such a fine charger, I imagine."

Merck & Co., the well-known firm of special preparations of medicinal value, have entered the field of veterinary medicine, and products that are offered are preceded by specially prepared literature, giving full description, properties and actions of the drugs.

City Veterinarian George S. White, of Nashville, Tenn., reports but little meat unfit for food, some milk not up to standard, but many dairies in a filthy condition, all of which is in line for better conditions in these needful sanitary directions.

It is evident that Germany recognizes the value of the veterinary sciences, and is willing to pay for developing them. This is shown by the facts that Hanover has recently erected a new set of buildings for the veterinary school at a cost of nearly 1,000,000 marks; that Saxony has provided 600,000 marks for additions to the hospitals and hygienic department of the veterinary school at Dresden, and at Leipzig the University has set aside 400,000 marks for improving its Veterinary Department. The Agricultural Department of Saxony estimates that the cattle of that State were injured by foot-and-mouth disease during the year 1899 to the extent of 20,000,000 marks. This does not include the losses caused by the ravages of this disease among sheep, goats, and swine.

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A rare chance for a Veterinarian to secure a good established practice of twelve years in a town of 2500 population in Western New York. Fine farming locality, no competition nearer than nine miles. Also, in connection with above practice, a first-class horse-shoeing trade, averaging $15.00 per day year round. Good reasons for selling; terms easy. Do not write unless you mean business and have $500, then address JOURNAL OFFICE.

THE JOURNAL
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VOL. XXI. *OCTOBER, 1900.* No. 10.

1. SARCOPTIC SCABIES OF THE HORSE. 2. PSOROPTIC SCABIES OF CATTLE IN MONTANA.[1]

Sarcoptes scabiei, Var. Equi. *Psoroptes communis,* Var. Bovis.

BY M. E. KNOWLES, D.V.S ,
HELENA, MONT.

1. SARCOPTIC SCABIES OF THE HORSE. During the early summer of 1896 my attention was called to the existence of a skin disease among horses in Teton County, Montana, supposed to be contagious by the gentleman making the report. A few days after the notice was received I visited Teton County, where a number of the affected animals were examined and were found to be suffering with sarcoptic scabies. On careful inquiry among a number of owners, I ascertained that the disease had been in existence throughout that county since 1884 or 1885; in any event it was about those years when it was first noticed and given attention by one or two of the range horse-owners of the county. It seems that the attention of my predecessors had never been called to the existence of the disease; at any rate there are no records in the office making mention of the disease as having received official attention. As the disease was found to be prevalent throughout the county among range horses, official notice was immediately given it, the county placed in quarantine, and preparations rapidly made toward stamping it out. A number of deputy inspectors (laymen) were appointed by me in various localities in the county, and after a meeting with the owners at Choteau, the county seat, during June of this year, an agreement was reached by which the work progressed rapidly and satisfactorily.

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[1] Read at the Thirty-seventh Annual Meeting of the A. V. M. A., Detroit, Michigan, September, 1900.

I was unable to obtain a satisfactory history of the introduction of the disease, but it is assumed that it was introduced from Oregon or Washington through Indian horses; possibly by the Nes Perces Indians during their raid through Montana in 1877, as a number of the bucks of this band of Indians, after General Miles' battle with them on the Snake Creek, drifted over into the Blackfeet Reservation, in the northern portion of Teton County. The existence of the disease under range conditions is mainly interesting from the fact that it is unusual under such conditions, and that it seems to be confined to that territory in Teton County, which, in fact, comprises the major portion of the county, between Sun River on the south and the Marias on the north. At least I have never been able to discover it outside of these boundaries, or, in fact, outside of Teton County.

During the past three years about 12,000 horses have been treated, and the disease is now practically stamped out. The method of handling these horses was as follows: During the spring and fall roundups, each roundup outfit would rope and throw every diseased horse coming under its observation, when, after being secured, they were hand-treated. In fact, every horse treated was unbroken, with one or two exceptions. We were compelled to treat them in this manner because no dipping-vats were constructed. Horses being of so little value at the time my attention was first called to the disease, the owners did not feel justified in building expensive dipping-plants for the purpose of treating the disease, as I suggested they do; but thought that hand-treating would be more economical and quite as efficient. There is no doubt that had vats been constructed the disease could have been more promptly stamped out.

The symptoms of sarcoptic scabies are manifest at first by an intense pruritus. The animal is found rubbing himself by every available means. On examination of the skin the observer will note papules at all the pruriginous points. On passing the hand over the parts, minute elevations will be felt, which consist of a small crust around several hairs. When this is removed there will be found a moist, denuded, red surface. In points between the crusted patches will be found slightly salient papules on close observation, which is the first evidence of the before-mentioned lesion; the papule elevating the epidermis by serous effusion which slowly dries, forming the crust. These lesions disseminate and bring about a loss of hair in small areas, which extend, ultimately becoming confluent, forming large, dry areas covered with epidermic débris and thin crusts. Vesicles rarely appear, as the irritation produced by the pruritus rapidly replaces them by the formation of crusts. By rapid generalization the depilated patches extend, finally invading almost the entire surface of the body, with the exception of the region below the hock and knees. When the disease has made this progress the animal becomes a miserable-looking object; the coat is dead, and over large areas ulcers of various sizes are formed from the constant rubbing, and the irritated surface constantly bleeds. The skin, as would be surmised, is thickened, and, in the region of the neck and other localities where it is attached by loose connective-tissue, appears in thick folds. The extensive irritation from constant rubbing and scraping is an important factor in increasing these extensive lesions in the skin.

The parasites in all stages of development are found among the crusts on all the invaded areas. The ovigerous females and the young larvæ live in the epidermic galleries, or tunnels, which are not easily distinguished in any but white-skinned horses. Neumann says that these galleries, or tunnels, are excavated immediately after copulation, and that they are rapidly formed; in from fifteen to thirty minutes the work is completed, and all the more promptly so if the temperature be elevated. He says it is for this reason that the parasites have been considered as noctambulant. If they torment animals more by night than by day, it is because of the condition of the temperature—the warm stable, litter, and probably clothing. As the stable, litter, and clothing do not act as factors under the conditions that I am describing, the above statement does not seem to be true, as horses on a range under constant night and day herd, seem to show about equal irritation at all times. During cold or windy weather it is extremely difficult to discover the sarcoptes; therefore, to not meet with disappointment, it is advisable to have warm, sunshiny weather in which to make the search. It is necessary to make skin-scrapings to the blood and through the entire thickness of the epidermis with a sharp instrument. When the scrapings have been collected they should be placed in a well-heated box or in a window exposed to a strong sunlight. A small quantity of the débris, after it is well warmed, can be spread on a slide and examined with a microscope with one-third or two-thirds objective. Should the slide and stage be warm the sarcoptes will disengage themselves from the débris, when they may be removed with a needle and placed with a drop of glycerin on another glass. Sarcoptic scabies is not as rapid in its development as is psoroptic scabies, and the disease is more clearly shown five or six weeks after its inception.

An interesting fact in connection with this outbreak was two cases of undoubted transmission of the sarcoptic scabies of horse to man. Two horse-wranglers employed by the "F" outfit contracted the disease from riding mangy horses. Both received the infection primarily in the genital region, the disease rapidly extending to the groin and the upper and inner aspect of the thighs, the lower portion of the abdomen, pubes, scrotum, and in one case the penis became involved. Both of these cases were easily cured by the remedy employed in treating the horse.

2. Psoroptic Scabies of the Ox. During May, 1898, it was reported to me by Deputy State Veterinarian, Dr. Thomas Brooks, of Choteau, Teton County, Montana, that there was in existence on the ranges of that county among cattle some apparently contagious skin-disease. On investigating the report I found that the doctor was correct, and that we had psoroptic scabies to deal with under range conditions and over a very wide area. Investigating the history of this disease on the northern Montana ranges, I ascertained from reputable cattlemen who had been in the range-cattle business for years, that the disease had existed to some extent for at least twenty years, and was generally regarded by experienced cattlemen as of little or no consequence, but it was admitted that it had been increasing during the past two or three years. At about the same time I ascertained from cattlemen ranging their cattle across the line in Alberta, N. W. T., that the disease was quite as prevalent in that locality, the approximate boundaries in which the disease exists being from Sun River, in Montana, as far north as the Saskatchewan in Alberta, and from the Rocky Mountains well toward the Dakota line on the east. Our range cattle-owners have been led to attach little importance to it, for the reason that the disease shows itself plainly during cold weather only, many cases having a tendency to apparently recover during the warmer months of

the year of their own accord, and to this alone is probably responsible the fact that the disease was not reported and investigated long ago.

The Canadian authorities in Alberta, I learn from Dr. Thomas Wroughton and Dr. John Burnett, veterinarians and lieutenants in the Northwest Mounted Police, made the discovery of the existence of this disease at about the time it was reported to me by Dr. Brooks. They immediately compelled the cattle-owners of Alberta to construct three dipping-vats after the plans recommended by the United States Bureau of Animal Industry, and commenced dipping in Zundell's dip, which I believe did not prove so satisfactory as was anticipated or as they desired.

On account of the difficulty in convincing our cattle-owners of the necessity for the above-mentioned procedure, no vats were constructed in this State until this year, and up to date we have but two in operation. During the past two years a great many cattle have been treated throughout the described area by what is commonly known among sheep-men as hand-patching, and in the main the method has proved successful, although expensive and tedious.

Neumann says that Linnæus observed on cattle a mange that was caused and maintained by insects which were found located in the tubercles of the skin; but in reality the first mention of the parasite (1813) is due to Dorfuille, a French veterinarian, Port St. Marie, who reported his discovery to Gohier, who in the following year found this acarus on Hungarian cattle which the Austrian army brought in large numbers to Lyons. Gohier regarded this parasite as identical with *Psroptes communis*, Var. Equi., with which he was familiar. Delafond, in 1866, discovered this parasite on English and Limousin cattle at about the same time that Gerlach discovered it on mangy cattle at Bomberg. Muller discovered it in 1860, and at intervals since that time it has been discovered in France. Fleming says the disease is not common in the United Kingdom. Dr. Mayo mentions its existence in Kansas, stating that he suspected its introduction from Texas cattle, and the disease there he says is commonly known as "Texas itch."

I am informed by reputable cattlemen that it exists in Wyoming, and widely, also, in Montana and the Northwest Territory as I have already stated. A number of our reputable cattlemen who have been in the range-cattle business for thirty years or more believe that the infection came from the buffalo, and described the disease as having affected buffaloes in the same manner. Old buffalo-hunters still residing in Montana have described to me such a skin affection, claiming to have killed buffaloes where the hide was worthless from a complete absence of hair, and covered with ulcers. They also relate that the disease appeared to be worse on the neck, withers, and the base of the tail. While it is quite possible that buffaloes suffered from some form of scabies, and that they have been responsible for the contagion, it seems strange that it should be perpetuated among range cattle in the area mentioned, when the buffaloes roamed over the entire western plains from Texas practically to the Arctic circle, and from the Rocky Mountains to the Missouri River. Roll, a Continental veterinarian, claims to have seen the disease on buffaloes, doubtless having reference to the European buffalo. We have yet remaining in Montana 500 to 600 head of buffalo under close domestication which I have examined, and have never found the slightest evidence of any skin disease of a contagious character existing among them.

The disease among cattle makes its first appearance at the root of the tail, or on the neck and withers, extending to the shoulders, neck, sides of chest, and in long-standing cases to the entire body and head, except the extremities below the knee and hock, in which regions I have never observed it. On the invaded areas small elevations of the skin are observed, single or running together, from which exudes serum, which dries and forms in successive layers of hard crusts, under and between which the parasites are found. The skin is thickened, hard and dry in localities, and on the neck, withers and sides of chest thick folds will be observed. The animal rubs and scratches by every available means. The pruritus is intense. I have observed animals scratching on wire fences, frequently cutting the skin through for a distance of from 8 to 14 inches on the sharp barbs. They are also observed scratching and rubbing against each other, in this manner certainly spreading the contagion. When an animal is in an advanced stage of the disease it takes refuge near an object on which it can rub, and will not leave that object for sufficient time to graze and obtain necessary sustenance. In advanced cases the animal is almost totally devoid of hair, death occurring in the winter from freezing, the animal being anæmic and debilitated. The disease is markedly prevalent among range bulls, from the fact that they come in contact with a greater number of cattle than the other sex.

Neumann states that Gerlach and Muller remarked on the modifications occurring in this form of scabies by change of season, reciting an instance where the disease prevailed among cattle every year, commencing toward the end of autumn, when the animals began to be housed, reaching its maximum in February, and diminishing in the spring, when the oxen were employed at labor; the crusts then became detached, the hairs grew, and there then only remained a few patches at the root of the tail and on the neck. The train of symptoms reappeared each autumn. The same writer also observes that these parasites (psoroptes) persist during the summer, although the cattle appeared to be cured. They (Gerlach and Muller), found the parasite in great numbers on the neck and around the horns. I have found great numbers of the parasite on cattle during the summer months, and was surprised at the slight amount of skin irritation at this time; in fact, one must observe closely to discover it; but I have observed the disease persisting throughout the summer, and apparent to the most careless observer. Neumann concludes from these facts that the residence of cattle in warm stables during the winter favors the development of the parasite. I cannot agree with the last statement. All the cattle in Montana suffering from this disease are range cattle that never knew a stable from birth to slaughter, and while it is true that the disease in many instances apparently gets well of its own accord during the summer, the parasite still remains, and on the approach of cold weather the disease is aggravated rapidly, due to the fact that the acarus requires more food during cold weather, making it, perforce, more active, and there is no doubt the secretions of the parasite are more irritating in cold than during warm weather.

All cattlemen of long experience with this disease on Montana ranges maintained, until shown the psoroptes, that the disease was due to hard "winters;" from the freezing and thawing of snow accumulating on the backs of the cattle, and long-continued, cold winters. They say the disease has been particularly noticeable after our very hard winters, and that after an open, mild winter but few cases of it have been observed. It is also said the disease is much worse on the open plains than where there is shelter, such as is afforded by the breaks along the Missouri, Marias, Teton, and other streams, and in the mountains. My observation has been that the disease persists with equal severity on the plains and in the sheltered places.

It is difficult, under range conditions, to arrive at an accurate estimate of the number affected with the disease, but, from my observations during the past year, would regard as a conservative estimate of cattle ranging north of the Missouri River, and from the mountains to the Dakota line, that about 20 per cent. are affected. This estimate refers to cattle plainly showing the disease, but there is no doubt that equally as great, or greater, percentages are affected that during the warm summer months show no evidence of it until cast and carefully examined.

Paraffin oil, to which was added about 3 per cent. of sulphur where hand-treating was employed, has proved to be a very efficient remedy for both psoroptic and sarcoptic scabies. Since the dipping-vats have been constructed a lime-and-sulphur dip is employed cheaply and successfully.

OBSTACLES TO ENFORCING REGULATIONS REQUIRING THE TUBERCULIN TEST IN INTER-STATE CATTLE TRAFFIC.[1]

By Austin Peters, M.R.C.V.S.,
CHAIRMAN OF THE MASSACHUSETTS CATTLE COMMISSION.

Massachusetts was among the first States, if not the first State, requiring cattle brought within her borders to be kept for dairy or breeding purposes to be subjected to the tuberculin test, although for several years prior to the use of tuberculin as a diagnostic agent Maine had maintained a quarantine against all Massachusetts cattle because of the prevalence of tuberculosis in the old Bay State.

In 1894 the Massachusetts Legislature passed an act providing that owners should be reimbursed by the State for one-half the value of cattle killed by order of the Cattle Commission as having tuberculosis. In 1895 the law was amended so as to provide that owners should be paid full appraised value for tuberculous cattle up to a limit not exceeding sixty dollars for any one animal. In 1899 this limit was reduced to forty dollars, the appraisal to be based upon the actual market value of the animal for milk or beef purposes at the time of condemnation, breeding not being considered. No compensation, however, is allowed for a diseased animal that has not been owned continuously within the State for six months prior to the time of condemnation.

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[1] Read at the Thirty-seventh Annual Meeting of the American Veterinary Medical Association, Detroit, September, 1900.

It was during 1894, also, that the Cattle Commission commenced using tuberculin on a large scale as a diagnostic agent, killing all reacting animals. It was at once obvious that if the State was to undertake the extirpation of bovine tuberculosis only healthy animals should be brought into the Commonwealth to replace those killed, and that their condition of health must be based upon their standing the tuberculin test. Massachusetts does not raise a great deal of neat stock; the supply of milch cows is brought in largely from without the State, especially at the eastern end, where the milk producers depend almost entirely upon new purchases brought in from other States to keep up their dairy stock. These cows come largely from Maine, New Hampshire, and Vermont, quite a number come from New York State, and a few from other places.

Every Wednesday a large cattle market is held at Brighton, a suburb of Boston, at which there are often 700 or 800 cows. Of these 200 to 250 come from Maine, 100 to 125 from New Hampshire, as many more from Vermont, and a carload or two from New York State; these are practically all new milch cows. The rest come from Massachusetts, many of them brought in by milkmen to sell because they are farrow, gargetty, or otherwise worn out, most of them being sold for cheap beef or bolognas, their owners replacing them with fresh stock mainly from the northern New England States.

There are about 20,000 head of cattle from without the State (not counting beeves), mainly milch cows, passing through Brighton market each year; most of them remain in Massachusetts, quite a number go to Rhode Island, and a few are taken to Connecticut. The Cattle Commission, therefore, in the autumn of 1894, issued regulations requiring all persons bringing cattle into Massachusetts to have a permit unless brought to the stockyards at Brighton, Watertown, or Somerville, which were designated by the board as quarantine stations, and requiring all cattle, except beeves for immediate slaughter and calves under six months old, to be subjected to the tuberculin test.

Commencing November 21, 1894, the cattle arriving at the stockyards were held in quarantine and tested by the Commission, all reacting animals being killed. Of course, under the law there is no compensation for a tuberculous animal that has not been owned in the State for six months; but if an animal killed by order of the Commission is found free from disease the State has to pay its full value to the owner.

Under the method first adopted it was found that quite a number of animals gave an apparent reaction to tuberculin, which when killed showed no lesions of disease, and, therefore, had to be paid for, making the work quite expensive for the State. This was due to the fact that many cows, as the result of the excitement of transportation and strange surroundings, would have a rise of temperature the day after arriving that could easily be mistaken for the rise of a tuberculin reaction. The cattle trains arrive early Tuesday morning; the cows are unloaded and given twenty-four hours to rest and bag up, and are placed on the market Wednesday. Wednesday has been market day at Brighton from time immemorial, I was going to say; at least, it probably has been ever since there was a market at Brighton. In order to give the cattle time to rest and recover from the effects of transportation the Cattle Commission had market day changed to Thursday, the cattle being tested Tuesday evening and temperatures taken Wednesday; even this was not satisfactory.

It was then proposed that the cattle should be brought down a week ahead—that is, cattle intended for sale one week should be brought down the preceding week and held in quarantine six days, and then tested. This plan would have entailed an extra expense that the drovers could not have stood, as it would have upset their plans and cut into their profits to an extent that would have driven them out of business. After testing the cattle at Brighton from November 21, 1894, to April 30, 1895, with the drovers fighting, objecting, and placing every obstacle in the path of the Cattle Commission that they possibly could, the work was temporarily abandoned. In July, 1895, it was decided that milch cows and breeding stock coming into Massachusetts must be tested, but that each drover could employ a veterinarian to test the cattle before shipment, the examiner to make out a certificate of tuberculin test on blanks furnished by the Cattle Commission. These blanks are made in duplicate, the animal described therein is identified and released by a member of the Commission at the stockyards, who gives the owner the original and keeps the duplicate to file away where it can be referred to at any time if a question concerning a particular cow arises. At the present time each cow is required to have an ear-tag (furnished the drovers at cost by the Commission), the ear-tag number and certificate number having to correspond; this makes the identification of each animal more easy.

The drovers entered readily into this plan, and each arranged to have a veterinarian in his locality test his cattle. The Cattle Commission obtained a list of veterinarians from the commissioners of the other States, whom they considered reliable, and the intention at first was to have only veterinary graduates upon it, and only those vouched for by Cattle Commissions of their respective States. In some localities there were no qualified veterinarians, and it was arranged to accept tests of members of the laity who were practical cattlemen, castrators, and the like, and familiarized themselves with the proper methods of applying tuberculin. This work was done honestly, probably, for a few months, then crooked work commenced and has been carried on to a greater or less extent by some men ever since. (An honest quack is better than a dishonest graduate.)

This plan has been followed now for five years, the animals brought to the stockyards each week need no permit; the cow dealers give the certificates of tuberculin test (often fake ones) to the Commissioner having charge of this branch of the work, who identifies and releases the animals. Cattle brought to any other points can come in only on permits, and if over six months old and for dairy or breeding purposes must be tested either before shipment, or after arrival at their destination, at the expense and risk of the owner. If any cows are brought to the stockyard quarantine stations untested they are held and tested in five or six days, in time to go on to the market the next week. Any that react are killed; if slightly diseased the owner can have what the butcher will allow him for the beef; if badly diseased the carcass is tanked. If the Commission makes a mistake by killing a healthy animal it pays for it.

Since 1894 and 1895 many other States have adopted regulations based upon those of the Massachusetts Cattle Commission. The Bureau of Animal Industry of the United States Department of Agriculture requires all cattle held at the Government quarantine stations to be tested with tuberculin if over six months old. The Canadian Government also requires neat cattle brought into Canada to have a certificate of tuberculin test made by a government veterinarian in the country from which they are shipped; in the absence of this they are held and tested at the quarantine station at the port of entry.

One would suppose from this that the State of Massachusetts had a right to adopt such rules and regulations as were deemed necessary for the protection of her live-stock interests, yet the Commission has had a steady fight on its hands for the last six years with the cattle dealers and drovers.

The regulations regarding the cattle traffic in various States differ somewhat. In Massachusetts the law gives the Cattle Commission power to issue all necessary rules and regulations for the protection of the live-stock interests of the State; the same is true of Vermont, New Hampshire, and Colorado. In some of the other States the Governor issues a proclamation upon the recommendation of the live-stock sanitary boards; Illinois, Texas, Wisconsin, and several other States are examples of this method. In Maine the Board of Cattle Commissioners may issue the necessary rules and regulations, subject to the approval of the Governor.

In some States the importation of cattle is regulated by the public statutes; examples of this are Rhode Island, Connecticut, New Jersey, and Pennsylvania. This legislation may favor the tuberculin test or may be directly opposed to it, and may even be carried so far as to show a distinct animus against the veterinary profession. The State of Connecticut is the most striking example of this feeling, its law being an epitome of prejudice and ignorance. It is a result of the reaction that set in in 1896 against the tuberculosis scare, and provides for the appointment of a single cattle commissioner, and specifically stipulates that he shall be a farmer and stock-raiser of at least ten years' practical experience. Under the law he has the power to employ such assistants as he may need, but with the present prejudice it is not likely that many of them will be veterinarians. He is to be notified by any one bringing cattle into the State of the number and physical condition of such animals within six days of their arrival. (It is not likely that many people trouble themselves to do so.) Under her law Connecticut deserves to be the dumping-ground for tuberculous cattle from the other New England States, and it is not unlikely that in time this may be the case.

Rhode Island has an intelligent and conscientious Cattle Commission, the Secretary of Agriculture acting as its secretary, with a commissioner from each of the six counties, an appraiser, and a consulting veterinarian. Until this year the law of Rhode Island provided as follows :

CHAPTER 342, ACTS OF 1896.

SEC. 2. All persons, corporations or companies intending to ship, transport or drive cattle into the State, must produce a certificate to the effect that the cattle to be so shipped, transported or driven are free from tuberculosis as far as may be determined by physical examination and the tuberculin-test. The certificate shall give a description of each animal brought into the State, sufficiently accurate for identification, and shall also give the date and place of examination, the preparation of tuberculin used, the quantity injected, the temperature immediately before inoculation, the temperature at the eleventh hour, and every two hours subsequent thereto, for at least ten hours, or until the reaction is completed. The certificate shall be signed by a veterinarian who is a graduate of a recognized veterinary college, and shall be sent immediately to the Secretary of the State Board of Agriculture, who shall immediately notify a commissioner of the county into which the cattle are to be shipped, transported, or driven, and said commissioner shall examine the cattle to identify them. Failure to comply with the law shall be considered a misdemeanor punishable by a fine not to exceed one hundred dollars.

SEC. 3. Complaint for the violations of the provisions of this chapter shall be made to the Secretary of the State Board of Agriculture, and said Secretary shall be exempt from giving surety for costs on any complaint made as aforesaid.

From an intelligent stand-point this would seem to be a good law, and one which ought to have been left alone; but the Rhode Island Legislature of 1900 passed the following amendment:

CHAPTER 756, ACTS OF 1900.

SEC. 1. All persons desiring to import cattle into this State or from other States without obtaining the certificate required by Section 2 of Chapter 344 of the Public Laws, shall give written notice to the cattle commissioner of the county into which the cattle are brought within forty-eight hours after the arrival into the State of such cattle, and such notification shall contain a specified list of the cattle so imported, with a full description of age, sex, and such other particulars as may be necessary for the identification of the said cattle, and the place where they can be found.

SEC. 2. Immediately upon the receipt of such notification the cattle commissioner of the county into which said cattle are imported shall proceed within seventy-two hours to the place designated and make a physical examination of said cattle; and if upon such examination said cattle shall be deemed free from tuberculosis it shall be so certified by said cattle commissioner upon a permit, and a duplicate thereof to be given to the owner of said cattle, and the cattle shall be released for the use and benefit of the owner.

SEC. 3. If after such examination the cattle commissioner shall be of the opinion that the cattle so examined are afflicted with tuberculosis, he shall require of the importer that the suspected cattle be tested with tuberculin, said test to be applied by a veterinarian of a recognized veterinary college, who shall give to the said commissioner a certificate in writing that such test has been applied, together with a statement of the tuberculin used, quantity injected, temperature of each animal before inoculation, and at the eleventh and every two subsequent hours thereafter, for at least ten hours, or until reaction is complete; and a duplicate thereof shall be given to the owner of said cattle, and the original certificate shall be sent by the said commissioner to the Secretary of the State Board of Agriculture. If after such test it shall be proved that such suspected cattle are afflicted with tuberculosis, such diseased cattle shall be immediately slaughtered, upon written order of said commissioner, and the State shall not be required to compensate the owner for their loss, and the owner shall pay for testing such cattle with tuberculin; but if such cattle shall be found free from tuberculosis they shall be released for the use and benefit of the owner. If any of such cattle are slaughtered, and upon post-mortem examination it shall be found that the slaughtered animal was not afflicted with tuberculosis, then the animal so killed shall be paid for by the State at the full appraised value, in accordance with the provisions of Section 11 of Chapter 99 of the General Laws.

SEC. 4. Any person violating any of the provisions of this shall be deemed guilty of a misdemeanor, and shall be fined not more than one hundred dollars.

SEC. 5. This act shall take effect from and after its passage.

It can be readily seen that this law is intended to counteract that of 1896, and was passed in the face of the opposition of the Rhode Island Cattle Commission and all intelligent argument that could be brought to bear against it. This is another example of obstacles to the tuberculin test on the part of the cattlemen, and an instance, which is becoming too frequent in our legislative bodies, of a few men whose financial interests are interfered with being able to secure legislation that is opposed to the public wellbeing.

On the other hand, Pennsylvania and New Jersey have very good statutes for the protection of their live-stock interests, providing that all persons and corporations must have permits to bring cattle within their limits, and that cattle for dairy and breeding purposes must be tested with tuberculin, either before shipment by reliable veterinarians or else be held in quarantine and tested after arrival at their destination.

These laws will probably stand, provided the financial and corporate interests antagonized by them are not sufficiently powerful to attempt their modification or repeal. Probably legislation such as has been enacted in Pennsylvania and New Jersey is more efficacious for the protection of the live-stock interests of a State than the power to make rules and regulations given to cattle commissions or live-stock sanitary boards, because, first, there is more respect for statute laws than for the rules and regulations of a commission; and, secondly, the courts will take more interest in enforcing the law than they will in imposing penalties for breaking rules and regulations formulated by a commission.

(To be continued.)

RABIES AND HYDROPHOBIA.[1]

By D. E. Salmon, D.V.M.,
CHIEF OF BUREAU OF ANIMAL INDUSTRY.

There has, perhaps, never been a time when it was more important than it is to-day for the veterinary profession to have a clear appreciation of what it knows in regard to the subject of rabies in animals and in man. In the pre-experimental period of the profession's existence there was ample excuse for difference of opinion, even, concerning the most apparent and most essential phenomena of this disease. It was the time when dependence was placed upon clinical observation of accidental cases, where the conditions were not controlled, and where the conclusions founded upon imperfect evidence were often unsound and liable to vary with the idiosyncrasies of the observer; but that period is past. To-day we have a science resting upon an experimental basis. Facts and conclusions have been established just as rigorously, just as solidly, as in other departments of science; and while we still have much to learn, as they have in every other branch of science, the fact that there are other fields to conquer does not detract in the least from the value or certainty of the results which have already been achieved.

As members of a learned profession it is our duty to know what has been accomplished by the scientific investigation of rabies; and particularly is this duty incumbent upon those who attempt to teach other members of the profession or the laity as to the facts in the case or the attitude of the profession. We have reached a point where the intelligence, the scientific knowledge, the standing of the veterinary profession in this country—I might say of the medical profession as well—are liable to be unjustly questioned because of a few mistaken and misguided individuals who persist in reiterating beliefs which never were held by a majority of the profession and which were discredited and disproved years ago.

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[1] Read at the Thirty-seventh Annual Meeting of the American Veterinary Medical Association, Detroit, September, 1900.

The mistaken views to which reference has just been made may briefly be enumerated as follows:

1. There is no specific disease to which the term rabies can be applied. This alleged disease has not been clearly defined, and no characteristic features have been enumerated by which it can be identified. The supposed cases of rabies are ordinary affections, such as indigestion, epileptic fits, cerebritis, paralysis, etc., improperly diagnosed.

2. There may be such a disease as rabies, but it is extremely rare. Nearly all the cases alleged to be rabies are ordinary diseases improperly diagnosed. "Not one dog in a million supposed to be rabid is really affected with that disease," says one writer, and this opinion is echoed by the editor of a prominent medical journal.

3. The method of diagnosis by the inoculation of rabbits and guinea-pigs is uncertain and misleading. The same results may be obtained by inoculating with inert substances.

4. Admitting that rabies of the dog may be encountered in extremely rare instances, the disease is, nevertheless, not communicable to man. The alleged rabies of man is a nervous affection developed as the result of worry and fear after being bitten; it is really lyssophobia.

5. The destruction of superfluous dogs and the muzzling of dogs for the control of rabies are cruel and unnecessary measures.

It appears to the writer simply astounding that educated men, much less physicians and veterinarians, will put forward such propositions as these in regard to a disease which has been known and described in every age since the faintest dawn of history, and which for a century has been the subject of experimental investigation by the ablest men who have occupied their minds with pathological questions. Nevertheless, it is a fact that the sanitarian of to-day who tries to control rabies is obliged to meet the same kind of arguments which were used to embarrass his predecessors of one, two, and three centuries ago. These arguments are most industriously circulated by the so-called humane societies, which oppose all conclusions based upon experiments with animals, and which foolishly imagine that they are doing a great work for the dogs and cats by casting discredit upon science, even though by so doing they perpetuate this horrible disease of which dogs and cats are the principal victims. But, unfortunately, the humane societies and the lay press are not alone in this effort to discredit science. It was said a few years ago that there had been so much of this sort of literature circulated among physicians that many hesitated to return a death as from rabies when the history and symptoms of the case warranted that diagnosis. This false doctrine has been propagated to such an extent that in one of the great cities of the country, recognized as a centre of medical learning, there have been two coroners in succession skeptical as to the existence of hydrophobia in mankind, and who have refused to record deaths as occurring from this disease even when the cases were reported as such by the attending physician. In one such case I understand the diagnosis was proved by the inoculation of rabbits, and that the disease was transmitted to three series of these animals. In another and more recent case it is reported that an eight-year-old child was bitten in the ear by a tramp dog which strayed into the kitchen of her home. The wound soon healed, and nothing was thought of it until about six weeks later, when the child complained of pain in the head and neck, which was soon followed by difficulty of drinking, spasm of the phayrngeal muscles upon the slightest draught of air or touch of water upon the body or suggestion of drinking, great nervousness, with paroxysms of excitement and fear. Death occurred in about two days. Nevertheless, the coroner was positive, according to press reports, that the disease was not hydrophobia. How did he know?

In recent years we find a very few veterinarians in this country who practically agree with the humane societies, and either deny the existence of rabies or contend that if the disease exists it is so rare as not to be deserving of attention. The existence of such opinions in our profession emphasizes the importance of investigations to collect the facts and of discussions to fix these facts in the minds of our confrères.

It is not many years since the effort was made to eradicate contagious pleuro-pneumonia from this country, and then we were met by the same class of reckless assertions, to the effect that there was no pleuro-pneumonia in the country; that pleuro-pneumonia of cattle was not contagious, and that we might kill all the cattle in the country, and when we stocked up again we would have the same disease, since it was due to the conditions of environment and not to contagion. How completely all of these assertions have been disproved is known to every one of you. Again, it is not many years since an estimable army surgeon was presenting papers before our medical associations to prove that there was no such disease as Texas fever. To-day Texas fever is so well known that no one would undertake to question its existence and specific nature.

Of late years it has been the existence and specific nature of rabies that has been doubted and questioned and ridiculed.

The Reality of Rabies. What do we know about the existence of rabies, and how do we know it? Let us briefly inquire.

From the time of Aristotle (322 B. C.) until the present day we have clear accounts of this disease existing through every age, and provoking fear and horror in many countries. It was always caused by the bite of an animal, which animal was generally alleged to be rabid. It was almost invariably described as fatal in men and animals. The symptoms from the earliest times have been given as nervousness, restlessness, fear, irritability, paroxysms of fury, spasmodic contractions of certain muscles, paralysis, and death. Aristotle admitted that the disease was fatal to dogs and every other creature which they bite, except mankind. This early mistake in regard to the immunity of man has been carefully handed down across the centuries, and is still repeated on every hand by those who oppose measures for the prevention of the disease. It may be freely admitted, therefore, that there have probably been many in all ages who have doubted the existence of the disease both in mankind and in animals; that numerous articles and books have been written to prove that the disease called rabies was not contagious, and that the supposed rabies of man was lyssophobia—a nervous affection brought on by fear and excitement.

The medical profession as a whole has, however, always recognized the existence of such a disease as rabies in man. The veterinary profession has from its foundation recognized the existence and contagiousness of the disease; its schools from the earliest to the latest have consistently taught this doctrine, and its text-books are all but unanimous on the subject. Would it not be wonderful, amazing, incredible, if at this late day it could be proved that the thousands and hundreds of thousands of observations recorded from the birth of history to the present day were misconceptions; that the authors were deceived, and the disease a myth? Where can you find a parallel to such a complete overthrow of an ancient and almost universally accepted conclusion concerning a phenomenon so accessible to observation and investigation?

The doubts raised from time to time concerning rabies and its characteristics were, however, early met by scientific experiments. Zinke,[1] in 1804, announced that he had inoculated a dog, a rabbit, and a cock with saliva from a rabid dog, taking the saliva with a brush from the animal soon after its death and spreading it over superficial wounds of the inoculated animals. The dog was inoculated in an anterior limb, and showed prodromic symptoms on the eighth day and was rabid on the ninth day. The rabbit was rabid on the eleventh day and the cock on the fourteenth day. This experiment, made so early in the century, proved that the disease of the dog called rabies was communicable by inoculation to the dog, the rabbit, and the fowl. It proved it to be a specific disease, and that the virus existed in the saliva. In this it confirmed the results of clinical observations extending over many years.

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[1] Zinke, Gottfried. Neue Ansichten der Hundswuth, etc., Jena, 1804, S. 180. Quoted by A. Högyes, Lyssa, Wien, 1897, p. 82.

Count Salm-Reifersheid,[1] in 1813, recorded experiments in which several dogs were inoculated partly with fluid and partly with dried saliva from a rabid dog. These became affected with rabies after eight to ten days.

Berndt,[2] in 1822, inoculated four wethers with saliva from the mouth of an ox which had died of rabies. The inoculation was made by smearing the saliva over a wound made by an incision through the skin of the limbs. All of these sheep contracted rabies, the incubation period being twenty-two, twenty-five, twenty-six, and thirty-one days.

Hertwig[3] inoculated fifteen dogs during the years 1823, 1824, and 1825. The material used was saliva from rabid animals, and this was placed in lancet punctures made in the skin of the frontal region, except with two animals, in which the inoculation was made at the back of the neck. Six of these dogs contracted rabies, the periods of incubation being nineteen, twenty-seven, thirty-two, thirty-four, thirty-nine, and forty days.

On June 14, 1841, Professor Rey, of the veterinary school of Lyons, France, allowed a dog, brought to the hospital, affected with rabies, to bite a ram on the nose and right foot. The wounds cicatrized in five days. In thirteen days (June 27th) the animal showed the first symptoms of rabies. The following day it became furious when approached, violently attacked objects presented to it, threw itself against the wall and the bars of its pen, or rushed upon persons who came near it. It seized its chain with its teeth, attacked another sheep placed near it, butted it, then jumped upon it as if for copulation. The third day of its illness it was very weak and unable to rise. The fourth day it died.

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[1] Allgem. Anzeiger, 1813, No. 1. Quoted by Högyes, loc. cit., p. 32.

[2] Journal der practischen Heilkunde, C. W. Hufeland, November, 1824, pp. 59-61.

[3] Beiträge zur nähern Kentniss der Wuthkrankheit oder Tollheit der Hunde, vom Oberthierarzt Dr. Hertwig. Journal der practischen Heilkunde von C. W. Hufeland, 1828, pp. 112-129.

Two days before the death of the ram mentioned (June 28th) two other rams were inoculated from it. One had the lips rubbed several times against those of the affected animal, and the other was inoculated in the nose and upper lip by punctures of a lancet charged with saliva. The former did not contract the disease. The latter was first affected August 6th, or thirty-eight days after inoculation. The symptoms were similar to those of the first ram, and resulted in death.

December 21, 1841, a sheep which approached the kennel of a rabid dog at the Lyons school was seized by this animal and bitten through the nose. January 4, 1842, or fifteen days after inoculation, it showed the first sign of rabies. It died the third day. The second day of the disease saliva from this sheep was inoculated upon another sheep by lancet punctures at the nose and internal aspect of the upper lip. This sheep became affected January 27th, or the twenty-second day, and died the night of January 30th.

January 30, 1842, the last day of the life of the sheep just mentioned, its saliva was inoculated by lancet punctures in the nose and lip upon two other sheep. The first contracted rabies in twenty-three days, dying two days later; the second became affected in thirty-six days, and died in three days.

March 8th a sheep was inoculated from the last-mentioned animal and in the same manner as already described. April 15th it presented the symptoms of rabies after thirty-eight days' incubation. It was at first violent and later paralyzed in its posterior extremities; it died on the ninth day.

April 20th a sheep was inoculated with the saliva of the one last mentioned. June 1st, or forty-two days after inoculation, it presented symptoms of rabies of greater intensity than the one from which it was inoculated. It showed marked excitement, striking the soil violently with its forefeet when approached; when set free it ran after people, trying to strike them with its head, and attacked dogs particularly. It lived six days, complete paralysis of the posterior limbs occurring before death.[1]

A lamb was inoculated from the last of the series, which did not contract rabies, so that out of eight inoculations of sheep by biting or lancet puncture the disease was transmitted seven times.

These successful experiments made during the first half of the century by competent men are absolutely conclusive as to the existence of a disease of the dog communicable to dogs and to other animals by biting and by inoculation with the saliva. If this disease is not rabies, what is it? And if you give it some other name do not the facts stand the same under one name as under another?

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[1] Rey. Expériences sur la Rage. Journal de Médecine de Lyon, December, 1842, p. 461.

It is not correct to say that the disease alleged to be rabies has not been defined with sufficient clearness for its identification. Let us see: A disease affecting principally the nervous system, shown by restlessness, irritability, fury, convulsions, paralysis, death; caused by the bite of an animal similarly affected; communicable by inoculation with the saliva; having a long period of incubation (three to six weeks); comparatively short course of disease (two to ten days); invariably fatal. Is not that picture clear enough for identification? With what other disease can it possibly be confused? Let those who make these allegations in general terms descend for a moment to details and answer these questions.

Further, it is hardly conceivable that an intelligent person, least of all a physician or a veterinarian, would hold at the present day that a dog affected with simple indigestion, convulsions, cerebritis, or paralysis would develop virulent saliva capable of causing by inoculation a fatal disease of the nervous system in other animals and with the transmitted peculiarity of virulent saliva. If this fanciful idea were established as a fact the dog would be about the most dangerous animal in existence, and very few of us would care to come in frequent contact with him. So far from making us more tolerant of the dog, the demonstration of the spontaneous development of a deadly virus in this animal's saliva for such slight causes as have been assigned would make us shun and fear him as we do the most venomous serpents. Fortunately for the dog, fortunately for mankind, and fortunately for all animated creatures, this conception of the self-constituted apologists for the canine species is without the least foundation in science, and undoubtedly false.

The spontaneous generation of rabies under certain conditions has been held by many eminent men who would not for a moment entertain the view that the disease developed from indigestion, epileptic fits, and other common ailments. The same men held that rinderpest, pleuro-pneumonia, and glanders originated spontaneously; but how rapidly has the belief in the origin of these diseases in the absence of contagion died out since the discovery of the nature of contagion! Who to-day believes in the spontaneous origin of pleuro-pneumonia or glanders? We know that these diseases are caused by vegetable parasites of the nature of bacteria, and that if the bacillus of glanders or that of pleuro-pneumonia originally had its habitat in nature outside of the animal body, as is probable, the transformation from a saprophytic to a parasitic existence unquestionably required unusual conditions and a long period of time. That the same is true of the contagion of rabies follows from analogy, and is confirmed by the failure of the disease to develop in Australia and by its absence from Sweden and Norway since its eradication from those countries. More recently we have seen the disease in Great Britain reduced from more than six hundred cases a year practically to zero by a few years of intelligent and systematic repression. Surely this result would not have been attained if the disease frequently originates *de novo*. There is no direct evidence in favor of the spontaneous generation of rabies; investigators who have tried to produce it by keeping dogs under the conditions which were said to cause it have uniformly failed. The tendency of modern thought and modern knowledge is unfavorable to this hypothesis, and it is regarded as antiquated, discredited, and unworthy of serious consideration in the absence of direct and convincing evidence. If we admitted the spontaneous generation of the disease, however, such a conclusion would in no sense benefit the dog nor those interested in that animal. On the contrary, it would make us more suspicious of the canine species and require all the more rigorous destruction of superfluous animals, with the strict enforcement of regulations to prevent contagion.

The Frequency of Rabies. Passing to the second contention, viz., that rabies is extremely rare, even in animals, and that not one case in a million supposed to be rabies is properly diagnosed, let us briefly inquire into the facts. There are certain European countries which keep very accurate statistics of rabies in animals, and the official reports of which may be taken as fairly reliable. In Germany these reports show 1202 cases of rabies in animals in 1898; in France, 2374 cases in 1899; in Belgium, 444 cases. In Great Britain in 1895 there were 727 cases, and in Hungary in 1895 there were 1397 cases.

In the United States, unfortunately, we do not have general statistics concerning this disease. The writer has recently requested information from the State veterinarians and from veterinary schools. A number of very carefully prepared replies have been received, which are summarized as followed:

Dr. Charles P. Lyman, School of Veterinary Medicine, Harvard University, Boston, 25 or 30 cases in eighteen years. He mentions the case of a policeman in the town of Lynn who was bitten and died.

Dr. W. J. Coates, American Veterinary College, New York, 7 cases a year for twenty-five years.

Dr. H. D. Gill, New York College of Veterinary Surgeons, New York, 8 cases a year for three years.

Dr. Wilfred J. Lellman, New York College of Veterinary Surgeons, 4 cases in his own practice and 2 in Dr. Gill's in one session.

Dr. Robert J. Wilson, Assistant Bacteriologist, Department of Health, New York, has confirmed the diagnosis during the last three years of 40 cases in domestic animals and 3 cases in human subjects.

Dr. Leonard Pearson, Veterinary Department, University of Pennsylvania, estimates 300 to 400 cases in fourteen years. As State Veterinarian he has found a great deal of rabies among farm animals. In many cases diagnosis has been sustained by laboratory tests. In man during last year, 2 cases in Lancaster, 1 in Kennett Square, 1 in Philadelphia, 1 in Allegheny. Three years ago a prominent veterinarian of Pennsylvania died of rabies.

Dr. J. M. Wright, McKillip Veterinary College, Chicago, from January 1, 1900, to April 5, had seen 11 cases in the dog and 3 in the horse. Handles about 20 cases of rabies a year.

Dr. A. H. Baker, Chicago Veterinary College, Chicago, has had in the last year about 10 cases in horses and 50 in dogs.

Dr. James Law, New York State Veterinary College, Ithaca, N. Y., has had brains of rabid animals repeatedly sent there for diagnosis, from which successful inoculations have been made. He brought a piece of the medulla of Neil, the keeper of the dog-pound at Newark, N. J., who died as the result of being bitten by a rabid dog, and inoculated a dog and a number of rabbits, some on the brain, others subcutaneously. All developed rabies. Has the best evidence of a number of men who died of rabies and from whom inoculation with saliva or brain substance caused rabies in the lower animals.

Dr. S. Stewart, Kansas City Veterinary College, says that 11 or 12 cases have been brought to the hospital within three years, 5 within one year.

Dr. John J. Repp, Veterinary Department, Iowa State College, says Dr. J. R. Sanders, of Corydon, Iowa, has noted 18 deaths of cattle with rabiform symptoms, 7 out of one herd of fifty. The medulla of one of the seven was sent to Dr. Repp, who inoculated a rabbit, which died in eighteen days, after suffering four days with gradually increasing paralysis.

Dr. H. J. Detmers, Columbus, Ohio, formerly of the Ohio State University, has seen 3 cases in dogs and 1 in a horse since 1893.

The Health Department of Buffalo reports a recent outbreak, not yet entirely over, in which it investigated, on complaint, 45 cases in dogs, and that in addition 74 cases of dumb rabies and 41 of furious rabies were brought to the pound. Animals other than dogs to the number of 27 were affected, and four persons died of the disease. Rabbits and dogs were inoculated experimentally and died of the disease.

Dr. A. W. Bitting, Veterinarian of the Indiana Agricultural Experiment Station, reports one outbreak some years ago. Two or three dogs and several sheep and hogs belonging to the station were affected. One year ago 1 dog, 7 horses, and 8 cattle died; this year, 1 dog.

Dr. C. A. Cary, Agricultural and Mechanical College, Alabama, states 24 cases have been observed there.

Dr. J. W. Scheibler, State Veterinarian, Kentucky, has seen about 20 cases.

Dr. George H. Bailey, State Veterinarian, Maine, had 1 case of dumb rabies in his practice in 1892. States that the Maine General Hospital had 1 case in a young man several years ago.

Dr. A. W. Clement, State Veterinarian, Maryland, reports about 30 cases brought to his attention officially.

Dr. Samuel S. Buckley, Veterinarian of the Maryland Agricultural Experiment Station, reports that at College Park, Maryland, several years ago a collie dog bit three cows, a calf, and a cat, all of which developed the disease.

Dr. Cooper Curtice, State Veterinarian, North Carolina, reports having noted 1 case in the human subject since he has been in that State.

Dr. W. H. Dalrymple, Louisiana State University and A. and M. College, has seen 1 typical case in a horse and at least 6 in cattle. Was informed by Dr. J. W. Dupree, Surgeon-General of the State, that the latter has had 3 cases in the human subject in his practice. In all cases the dogs which did the biting were preserved and died after showing characteristic symptoms of rabies.

Dr. F. A. Bolser, State Veterinarian of Indiana, reports three outbreaks of rabies in six years, affecting horses, mules, cattle, and hogs. Two young men were bitten, badly lacerated, and died in great agony.

Dr. H. P. Clute, State Veterinarian, Wisconsin, reports 14 cases in dogs, sheep, cattle, and horses. Rabbits inoculated at the State Experiment Station from the brain of a dog died of rabies in eighteen and nineteen days; others inoculated from the brain of a calf died of rabies in twenty-one and twenty-two days.

Dr. A. T. Neale, Director Delaware Agricultural Experiment Station, mentions death from rabies of 3 or 4 cows in one herd. Dogs and rabbits were inoculated from the medulla of one of these cows and developed the disease. A dog at the station which was bitten by a strange dog became affected with rabies. Diagnosis was proved by inoculating rabbits. One case, in a horse, not tested by inoculation.

Dr. M. E. Knowles, State Veterinarian, Montana, has seen about 60 cases of rabies in fifteen years, of which 53 were brought to his attention officially.

Dr. J. W. Elliott, State Veterinary Surgeon, South Dakota, has had as many as 100 cases brought to his attention in the last two years, mostly in cattle, and the disease could be traced to the bites of affected dogs.

Dr. G. T. Seabury, State Veterinarian, Wyoming, has seen 3 cases in dogs. He knows of a case in man caused by the bite of a skunk.

Dr. Sol. Bock, State Veterinary Surgeon, Colorado, has seen at least 50 cases in the last year.

Dr. Paul Fischer, Kansas State Agricultural College, reports 1 case in a horse in 1897. Rabbits inoculated died in thirty days of rabies.

Dr. A. T. Peters, Animal Pathologist, University of Nebraska, reports about eight different outbreaks recorded there. In one outbreak a dog bit several other dogs, a cow, and a horse. The cow was quarantined and died thirty-one days afterward of rabies. The horse was but slightly wounded and developed rabies after about two hundred days.

Dr. L. L. Lewis, Department of Veterinary Science, Oklahoma Agricultural and Mechanical College, states that 2 cases of rabies have come under his observation since he has been in that position.

In the District of Columbia the first investigations by the Bureau of Animal Industry were made in 1893; they were discontinued during 1894, and were taken up again in the fall of 1895, since which time cases of canine rabies have been demonstrated every year. There have been sent to the laboratory by the Health Department a number of dogs each year that were suspected of rabies.

As all such cases which have occurred have not been sent to the laboratory, it cannot be said that we have discovered all of the cases of rabies which have occurred. The number of demonstrated cases of rabies in dogs in the District of Columbia is as follows: In 1893, 11 cases; in 1895, 2 cases; in 1896, 5 cases; in 1897, 3 cases; in 1898, 7 cases; in 1899, 19 cases; in 1900 to July 31st, 29 cases, making a total of 76 cases in dogs. All of these cases have been tested by inoculation, and have given positive results. In addition to these figures a certain number of other animals have died of rabies.

Seven deaths of persons from rabies are recorded by the Health Department of the District of Columbia since 1877. In 2 cases the diagnosis was proved by rabbit inoculations.

These figures do not indicate that rabies is such a rare disease as is alleged. So far from its being true that not one case in a million supposed to be rabies is really that disease, we have found more cases of rabies than were supposed to occur. Not even the most sensational newspapers in our city have had as many reports of rabies in dogs as were actually found by these tests.

(To be continued.)

URINARY ANALYSIS IN VETERINARY PRACTICE[1]

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The urine essentially represents a solution of tissue constituents; certain of these may appear in the urine in much the same form as they appear in the food before it is digested—*e. g.*, sodium chloride. Other urinary constituents, however, are the result of active tissue metabolism, the effect of which is to break down the nutritive material brought to the tissues and the rearrangement of these products in new combination—*e. g.*, urea, creatinin, etc.

There is, perhaps, no other secretion in the animal body which varies so much in its composition as the urine. The amount of the constituents of a perfectly normal urine may, therefore, change within relatively wide limits without having any special significance. The analysis of urine taken from a healthy individual at different periods does not give exactly identical results. Such variations are dependent upon diet, temperature, exercise, etc., and are purely physiological in their nature.

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[1] Read at the Thirty-seventh Annual Meeting of the American Veterinary Medical Association, Detroit, September, 1900.

Abnormal urine may result from the presence of abnormal constituents, as albumin, sugar, and bile, or from the presence of one or more of the normal constituents in abnormal amount.

The urine serves as an index to tissue activity. It is the key which opens the door to the tissues and reveals their purposes.

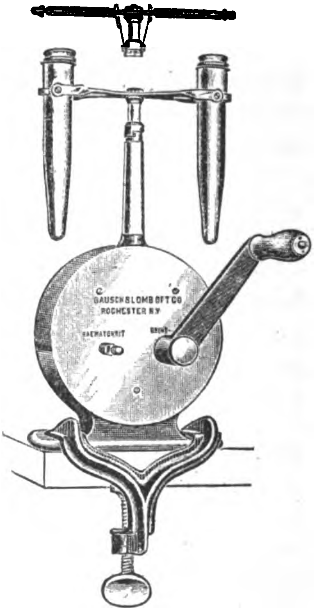
Veterinary medicine, in its beginning, was largely dependent upon human medicine; and while there is a broad similarity in these two branches, and, in general, the animal tissues react to certain drugs similarly to those of human tissues, there are some exceptions in which each species reacts in a manner peculiar to itself, and the reason for this is to be found in purely physiological conditions. So in the meagre analyses of the urine of the domestic animals at the present time the veterinary practitioner can only follow the outline in use for the examination of the human urine. There are obvious reasons why this must be done, for, so far as the writer knows, there is not at the present time in the English language any manual or set of directions devoted especially to the examination of the urine of domestic animals.

Although the majority of the tests given for the recognition of the constituents in the human urine may apply as well to that of the animals, there are differences, both qualitative and quantitative, which must be carefully considered in order to obtain anything like acurate results. There are differences in chemical reaction, odor, consistency, pigments, and constituents which may in many instances influence the results very materially.

Veterinary literature contains almost nothing relative to a careful and purely scientific analysis of the urine of the domestic animals. A painstaking search through English, French, and German literature for some years back shows that comparatively little attention has been paid to this important subject.

In human medicine the examination of the urine has become so firmly established and has given results so important for purposes of diagnosis and prognosis that one may reasonably inquire why these undoubted benefits may not be utilized in veterinary practice. It is evident, in the majority of cases, that the veterinary practitioner has not had the necessary experience; that he does not possess the apparatus nor the time requisite for an exhaustive or strictly scientific analysis. A mere qualitative examination, although useful for the detection of abnormal constituents, is not always sufficient. A quantitative examination has hitherto been out of the question, because, aside from the skill and apparatus necessary, a number of days would be required for a complete analysis of all of the urinary constituents.

Within a comparatively recent time new methods and apparatus have been introduced which find as ready an application in veterinary as in human usefulness. I refer especially to the centrifuge, which may now be obtained at a moderate cost, and by means of which very approximate quantitative results may be obtained in a minimum of time. For the estimation of the chlorides, sulphates, phosphates, uric acid, albumin, and urinary deposits the centrifuge is especially useful. With this apparatus but little time is required, and the information necessary for prognostic, diagnostic, or clinical purposes is readily obtained.



Two speed centrifuge, one-fourth actual size.

In veterinary practice it is seldom necessary to examine the urine of any but the horse, and what follows is therefore understood to apply to this genus.

The urine may be obtained in various ways. Sometimes it is sufficient merely to pass the hand into the rectum and press gently upon the bladder; the catheter may be used (more easily in the female than in the male); or a urinal made of rubber or leather may be strapped to the horse in such a way that all of the urine may be caught.

Quantity. The normal quantity of urine passed by the horse in twenty-four hours is from 3000 c.c. to 6000 c.c. (three to six quarts).

Color. The normal color of the urine is due to pigments derived from the coloring matter of the bile. In the horse it is of a yellowish color when first passed, but turning to a deep brown after the urine has been allowed to stand for a time, or after it has been filtered.

Transparency. The urine of the horse is normally more or less turbid when it is passed, and it is especially so toward the end of micturition. The turbidity is due to the presence of earthy salts, chiefly the carbonates. The longer the urine remains in the bladder the more turbid does it become. The turbidity is diminished after the ingestion of large quantities of water. In other animals the urine is normally clear when it is passed, and any turbidity at that time indicates abnormal conditions. On the other hand, a clear, limpid urine in the horse is generally regarded as pathological, indicating polyuria and often showing an acid reaction.

Consistency. In the horse the urine is very viscid on account of the contained mucus and sometimes of epithelial débris. It filters very slowly. Urine taken directly from the ureter or the pelvis of the kidney is still more viscid, having a consistency very similar to that of egg-albumin and a high specific gravity. This would seem to indicate that the urine becomes more fluid after it has reached the bladder.

Reaction. In the horse the reaction is normally alkaline, and is due to the presence of the carbonates or bicarbonates of lime or potassium. A vegetable diet always influences the reaction in favor of alkalinity. It would appear that the salts present in the plants undergo oxidation to form organic acids, and these in turn are transformed into carbonates, causing alkalinity of the urine. In case of fasting or starvation, the urine of the herbivora becomes acid, which is accounted for by the fact that they are practically carnivora for the time being, and living upon their own tissue.

Specific Gravity. Normally the specific gravity ranges from 1020 to 1050, the average being 1035. It may fall as low as 1005 to 1010 in chronic interstitial nephritis, or rise to 1050 or 1060 in diabetes.

Water. The water of the urine is derived mostly from the food and drink, and varies in amount according to the activity of the skin.

Chlorides. The chlorides are the most abundant of any of the inorganic constituents, and are derived chiefly from the food. They are of importance clinically in that they are diminished or sometimes entirely absent in those diseases where effusions or exudates occur—*e. g.*, pneumonia. Their reappearance or increase is a favorable sign. The chlorides are also decreased in acute fevers and in some chronic diseases. They may be increased physiologically after the ingestion of salt foods and much water, and during pregnancy.

Sulphates. The sulphates are formed from the metabolism of the proteids in the body, and are known as ordinary sulphates. Another form known as ethereal sulphates also exists, and is present in greater amount than the former. The ethereal sulphates are formed by the combination of sulphuric acid with organic radicles, such as phenol, skatol, etc., which originate from the putrefactive processes going on in the intestine. They are of importance clinically, as they indicate any derangement of the proper performance of the digestive processes.

Phosphates. It has been claimed that phosphates do not normally occur in the urine of the horse. It is now generally held that they are present, but in small amount. In the urine of the omnivora and carnivora the phosphates abound. The food of the herbivora is rich in phosphoric acid, and that it does not appear in the urine except in such slight amounts is due to the fact that it forms salts in the intestines, with inorganic bases taken in with the food, and these salts are largely eliminated with the feces instead of in the urine as in the omnivora and carnivora. The phosphates exist in two forms—earthy and alkaline—the latter being more abundant. Physiologically the phosphates may be increased in the urine of the horse after a large feed of oats, bran, oil-cake, etc. Pathologically they are increased in diseases affecting the bones, as rhachitis, osteomalacia, osteoporosis, and during the active period in such bone diseases as spavin, ringbone, splint, etc. They are also increased in rheumatism and diseases of the nervous system. Clinically it is of considerable importance to examine for the amount of phosphates present.

Urea. This is the most important of the organic constituents, and represents about one-half of the total solids in the urine. It is the most important product of the decomposition of the proteids in the food. It is increased physiolgically by a proteid diet, exercise, and muscular vigor, and by drinking much water. It is decreased physiologically by fasting, non-nitrogenous food, and reduction of water in the diet. Pathologically urea is increased in all acute fevers, dyspnœa, diabetes, and phosphorus-poisoning. It is decreased in uræmia and in many chronic diseases. In general, any disease which interferes with the activity of the liver decreases the urea. Disease affecting the uriniferous tubules causes an appropriation of the urea from the blood and passes it on into the urine. Some medicines which increase the amount of urea are: common salt, colchicum, atropine, cantharides, ammonium chloride, coca, and salicylic acid. Some which decrease the amount of urea are: digitalis, alcohol, caffeine, the iodides of sodium and potassium, potassium bromide, arsenic, turpentine, and quinine.

Uric Acid. This nitrogenous constituent is present in small amount in herbivorous urine, although commonly said to be absent and its place filled by hippuric acid. The latter is present in much larger amount. In omnivora and carnivora the reverse is the case.

Indican. This substance is derived from indol, one of the putrefractive products formed in the intestine. It is said to exist normally in the urine of the horse to an amount twenty times as great as that found in man. Indican is of considerable clinical importance, an increase is indicative of an imperfect performance of the digestive processes. In cases of obstruction of the intestine the increase in the amount of indican is enormous.

Thus far only certain of the normal constituents of the urine have been considered. A knowledge of their presence in normal or abnormal amount in certain diseases is of the highest importance for clinical purposes. Among the important abnormal constituents found in the urine are: albumin, sugar, bile, blood, melanin, etc.

Albumin. The presence of this substance in the urine is regarded as pathological. According to some, there may be a physiological albuminuria for a short time, after a diet containing much albumin, or after violent exercise. The principal form of albumin present is serum-albumin; in addition there may be serum-globulin, acid-albumin, albumose, or peptone. There are special tests for distinguishing each variety, but to the practitioner the ordinary tests for albumin are sufficient, for in whatever form the albumin may be it indicates an abnormal state of affairs, and proper treatment should be administered. Fundamentally, a change in the character of the blood, a disturbance of the circulation with regard to blood-pressure, or a change in the kidney itself with respect to the epithelial cells of the uriniferous tubules, or of the glomeruli, thereby affecting transudation, account for the presence of albumin in the urine. Pathologically, albumin may appear as a result of suppression of cutaneous perspiration, in pulmonary and cardiac diseases, febrile and inflammatory diseases, lesions or prostrations of the nervous system, hydræmia and ailments that disturb the vascular tension, diseases of the genito-urinary system, and after the use of such agents as copaiba, cubebs, turpentine, and also some emetics and drastic cathartics and some anæsthetics ; also poisoning by phosphorus, iodides, and iodoform.

Sugar. Dextrose or glucose exists normally in the blood in the proportion of one or two parts per thousand. When a greater amount than three parts per thousand exists, the excess is excreted through the kidneys. Sugar in the urine does not necessarily point to disease of the kidney or urinary organs, but rather to the liver, indicating that its glycogenic function has been disturbed. In diabetes, the kidney in ridding itself of dextrose becomes irritated, and this irritation extends down the entire canal, thus producing a real polyuria.

Physiologically, sugar may be found in the urine during pregnancy and lactation. Pathologically, sugar is found in diabetes, in impeded respiration from pulmonary diseases, in impeded hepatic circulation due to functional and organic diseases of the liver, and in certain diseases of the nervous system ; also from the action of certain poisons, as carbon monoxide, arsenic, chloroform, and curare. The specific gravity is high and the color is usually pale, from the dilution—not diminution—of the urinary pigments. Albumin interferes with the tests, and should be removed in all cases.

Bile. In certain pathological conditions the elements of the bile are excreted in the urine. The pigments biliverdin or bilirubin may occur along with the bile-salts, or the bile-salts may occur alone. The urine is generally of a greenish or yellowish brown color, and froths easily. In cases of jaundice, functional or organic diseases of the liver, bile may be looked for in the urine.

Hæmaturia, or blood in the urine, may have its source from lesions in the kidney, as in acute nephritis, or in the ureters, bladder, or urethra. Blood may be detected by certain chemical tests, also by the use of the spectroscope and microscope.

Melanin. Melanin may exist in solution in the urine, but may sometimes appear in the form of a brownish or black sediment, recognizable by the microscope. An examination for this substance possesses diagnostic significance when the melanosis is beyond the reach of examination by the eye or by touch. It may disappear from the urine when the disease is arrested, or it may remain stationary. The practical significance of this condition (melanuria) is limited by the fact that the urine may contain melanin in wasting diseases, and that obtained from patients suffering from melanotic cancer may be entirely free from it. Nevertheless, as an adjunct in diagnosis, an examination for this substance is of undoubted utility.

It has not been the purpose of this paper to offer any scheme or set of directions for the analysis of herbivorous urine, but rather, by calling attention to certain constituents of the urine and the changes they may undergo qualitatively or quantitatively, to show the importance of this subject in the diagnosis and prognosis of disease, the information thus obtained oftentimes being more available and of more direct use than clinical symptoms.

PRACTICAL ANTISEPSIS IN SURGERY.[1]

By G. A. Johnson, D.V.M.,
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During the last quarter of the nineteenth century surgery has made such rapid progress that now major and difficult operations are taken as matters of fact and have ceased to be the wonder of the times; especially is this true in surgery of mankind.

This marvellous progress is very largely due to a better knowledge of the rôle played by microörganisms in the process of wound repair. Medical literature is replete with treatises ranging from the short essay to the voluminous text-book upon the subject of antisepsis in its various forms. While the surgeons of the human school have succeeded in gaining a position nearer that of perfection than have those of the veterinary school, it is not to be understood that veterinary surgery has not made great progress.

We have naught but commendation for the veterinary surgeon, who, being desirous of advancing his profession and establishing a reputation for himself by attempting to follow the methods and modus operandi of the eminent surgeons of mankind, and counselling his colleagues to go and do likewise, nor is it strange that in so doing he should at times have been carried beyond the essential landmarks of his profession by the swirl of "the pace that kills" in attempting to get similar results where conditions are so materially different as they are between the human and the brute patient.

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[1] Presented at the Thirty-seventh Annual Meeting of the American Veterinary Medical Association, Detroit, September, 1900.

From a clinical view-point we may consider wounds as surgical or accidental; surgical wounds are such as result from surgical operations—all others as accidental.

While it is not within the province of this paper to enter into a discussion of the physiological or pathological phenomena of the process of repair, a short discussion of the classification of these phenomena may not be out of place.

From a physiological view-point there is no material difference in the phenomena that takes place when a wound is immediately closed and normal relations are resumed in a few days, without the formation of pus, and in one that remains open and pus is formed. The difference is one of degree rather than of kind.

From a pathological view-point there are two classes of wounds—aseptic and infected. Surgeons of the human school are quite generally agreed to use the pathological classification whereby all wounds are considered to heal by primary or secondary intention—that is, all septic wounds are said to heal by first intention, primary or immediate union, no matter how much time may be required for the completion of the process of repairs, provided it is accomplished without the formation of pus, while all infected wounds—that is, wounds where the process of repair is accompanied by the formation of pus—are said to heal by secondary intention or granulation. But from a clinical view-point, are not veterinarians justified in dividing Class 1 into two subdvisions, thereby having three classes of wound repair? Thus, in Class 1 we would have healing by first intention, primary or immediate union, where the aseptic parts are brought into close apposition and the normal functions are resumed in a few days. In Class 2, or healing by secondary intention, where the parts of an aseptic wound cannot be brought or kept in close coaptation, but where the process of repair is carried to completion without the formation of pus; and Class 3, or union by granulation, where the process of repair is accompanied by the formation of pus. Thus, we would have two classes of repair in aseptic wounds and one class in infected wounds.

While this classification is purely an arbitrary one, I believe its retention will give lucidity, hence its use in this paper.

It should be the desire of every surgeon to have all of his cases recover as rapidly and with as little inconvenience to his patient or its owner as possible; that is, to have all of his operations terminate by primary union when possible.

This being the pinnacle of perfection, let us briefly consider the conditions that are necessary for its success. Healing by primary or immediate union depends upon three conditions, namely: asepsis, coaptation of the parts, and physiological rest. The healing of a wound by primary union might be likened to the erection of an edifice upon a tripod. If one or more of the legs of the tripod are broken, down comes the structure. Asepsis, coaptation, and physiological rest form the tripod that sustains healing by immediate union, and the least defect in either of them renders such a union an impossibility.

The conditions necessary for healing by secondary intention is that the wound be kept aseptic.

The surgeon of the human school can usually acquire an aseptic wound through the use of a disinfected operating-room, sterilized instruments and dressings, close attention to the disinfection of the person of the patient, the clothing, bedding, etc., and of himself and his assistants; by means of position, ligation, torsion, and wiping he can control hemorrhage, free the wound of blood-clots and serum; and with sutures buried and otherwise he can usually coapt the parts, uniting muscle to muscle, tendon to tendon, and bone to bone; and through the submissive and usually assisting disposition of the patient, supported by bandages, splints, etc., he can generally secure the necessary physiological rest.

Veterinary practice presents a field strikingly in contrast to that of the surgeon of mankind. The veterinary surgeon may be so fortunately situated as to have all of the accessories to his work as favorable to good results as the surgeon in human practice, but when it comes to the patient, instead of having a usually submissive and assisting subject, he has a defensive combatant from start to finish. But to the ordinary veterinary surgeon, with his patient cast on the windy side of a barn upon some old musty hay or straw, or, as more frequently is the case, on the bare ground, which is either muddy or dusty, with no opportunity for properly disinfecting the body of his patient, with dirty assistants and the gentle zephyrs scattering germ-laden particles of dust in all directions, an aseptic wound means much.

But let us presume that he has succeeded in performing an aseptic operation, the impossibility of securing and maintaining coaptation of the parts, in most wounds, precludes healing by first intention; while, on the other hand, if he has succeeded in getting good apposition of the parts of an aseptic wound, can he control the patient so as to secure physiological rest except in a few special regions?

Accidental wounds are usually infected, and it is only by strict observance of the principles of antisepsis that surgical wounds are kept aseptic.

In operating I usually follow as closely as circumstances will permit the following lines :

1. Proper dieting of the patient.
2. Cleansing and disinfecting the field of operation, (*a*) removal of the hair ; (*b*) washing the parts with soap and water ; (*c*) washing with a disinfectant. For this purpose I prefer crude (full strength) creolin well rubbed in over the field of operation, and allowed to remain from three to five minutes and then washed off. If allowed to remain too long it will produce too much irritation, resulting in œdema of the parts. After the first application of the creolin has been washed off, I usually apply a very small quantity of creolin to the wet surface, and allow this to remain until I am ready to operate.
3. Such sterilized instruments as are likely to be needed during the operation are placed in a tray containing a 1 per cent. solution of formalin.
4. (*a*) Confining the animal by casting or otherwise ; (*b*) giving the parts a final washing with sterilized water or a weak solution of creolin. I usually apply a very light coating of creolin over quite a surface surrounding the field of operation, with a view of preventing hands or instruments from becoming infected by accidentally coming in contact with these parts.
5. Disinfection of the hands. Usually I rub my hands with some crude creolin, then wash them, seeing that the nails are well cleaned, then wash with a 1 per cent. solution of formalin.
6. The operation, including hæmostasis.
7. Dressing the wound. Remove all blood-clots, shreds of tissue, and stop seeping as much as possible by gently wiping with pledgets of cotton or gauze. The further dressing depends very largely upon the location or character of the wound. If the wound is such that the parts can be brought into close apposition and retained thus, I put into the cavity a limited quantity of some non-irritating, prohibitive antiseptic, as boric acid or iodoform, that will not interfere with immediate union, but that will have a tendency to arrest the development of any germs that may have accidentally found lodgement in the wound. Then fix the parts by means of aseptic sutures, cover the parts with some of the same or similar powder as used in the wound, and over this apply a quantity of gauze or absorbent cotton, upon which has been applied a

goodly quantity of a similar powder, and retain this in place with bandages.

If the wound is such that the parts cannot be brought into apposition or be kept so, but where the edges of the skin may be brought together, fill the cavity thus formed with a non-irritating antiseptic powder and suture the skin, and if practical apply a protective dressing of gauze and bandages. If the gauze and bandages cannot be applied, a coating of antiseptic collodion or wound gelatin may be applied over the wound. Remove the dressing and sutures as soon as there is any evidence of the sutures giving way or that the wound has become infected ; cleanse the wound and repeat the treatment as at first.

To illustrate, I will cite the treatment of a case of scirrhous cord in a horse. The horse, having been dieted for a couple of days, was cast and operated upon under chloroform anæsthesia with antiseptic precautions as above outlined. An egg-shaped tumor about six inches long by four inches in diameter was removed, leaving a cavity so large as to preclude coaptation of the parts. The wound was cleansed of blood-clots, shreds, etc., and seeping partially checked by means of wiping with gauze, and a powder composed of about three drachms each of boric acid and acetanilid was put into the cavity, the wound in the skin closed with sutures, and the parts well dusted with some of the same powder as used in the wound. The animal was allowed to get up, and was placed in a box-stall in a large boarding barn, and kept on a light diet for a few days. The case made a rapid and complete recovery, and was driven on the tenth day after the operation.

Following the operation there were no fever, loss of appetite, or swelling of the parts, other than a slight œdema of the sheath ; no pus was formed, except some around the sutures about a week after the operation, notwithstanding the fact that on the second day after operating I introduced my finger between the sutures, breaking down the adhesions to allow the escape of a small quantity of serum that had collected in the cavity. The only other treatment used was the daily application of cold water from a hose attached to a city hydrant.

The same modus operandi, except the dieting, was followed in the castration of a cryptorchid and in the removal of a tumor from the breast of a horse. The tumor case made a rapid recovery, leaving but a slight scar, but I never heard from the castration case after the operation.

In wounds where there is a large cavity, but where the powder and sutures cannot be applied with a reasonable assurance of success, pack the cavity with antiseptic gauze or absorbent cotton. I prefer the gauze, as it is easier to introduce ; it is retained better, and can be withdrawn with less trouble. The desired amount of liquid or powdered antiseptic can be applied to, or within the folds of, the gauze. This packing should be changed as frequently as the case demands, usually once a day or every second day. I have treated two cases of fistula of the withers and one abscess of the shoulder by this method with good results.

In wounds where a large quantity of skin has been destroyed, disinfect the wound and dust freely with some desiccating antiseptic powder frequently enough to secure healing under a dry crust or scab. For this purpose Dr. Frick recommends a powder composed of iodoform and pulverized sugar, equal parts.

In the treatment of open joint the opening should not be allowed to close until the interior of the joint has been rendered aseptic. This may be accomplished in ordinary cases, where the destructive process has not advanced sufficiently to destroy the articular cartilage, by thoroughly washing out the joint with proper antiseptics and protecting the external wound with a powdered antiseptic, reinforced by a dressing of gauze and bandages when practical. For this class of cases I prefer a corrosive sublimate solution (1 to 1000 to 5000 parts). If the wound cannot be thoroughly cleansed through the original opening, make one or more other openings that will admit of this being accomplished. Other accessory treatment, such as internal medication, splints for immobilizing the parts, slings, etc., should be used according to the indications of each case and the temperament of the patient.

In treating infected wounds the first step should be to thoroughly wash the parts (wound and surrounding region) with soap and water and cleanse with an antiseptic solution, then by means of a knife, scissors, or curette remove all foreign bodies, shreds, necrosed or lacerated tissues, exuberant granulations, etc. Then wash the wound with an antiseptic solution until the contaminating germs are destroyed. Then treat according to the indications of the case ; in other words, render the septic wound aseptic and treat accordingly. I am of the opinion that we frequently fail in our attempts to cleanse infected wounds because we do not apply active germicidal remedies for a sufficient length of time to destroy all germ life. But better results will follow the application of a solution of medium strength for a longer time than of a stronger solution for a shorter time. On the other hand, it is of very little practical value to render a wound aseptic and permit it to immediately become reinfected.

It is quite generally agreed by veterinary surgeons that it is impracticable if not impossible to obtain sufficient immobility of the parts to secure healing by primary union, except in a few regions, as the lower part of the extremities, the inguinal region, the face, and the ears. But this should not deter us from employing the principles of antiseptics, but we should bend our energies toward making the theory apply to the case, rather than trying to make the case fit the theory. There is no question but that we should attempt to secure union by first intention when and wherever practical. But when this cannot be reasonably expected we should try to secure union by secondary intention—that is, healing by granulation without pus, for the formation of pus indicates a destructive process, and its presence always retards the process of repair.

Judging from results so far obtained, I am led to believe that a majority of wounds that domestic animals are subject to may be healed by secondary union through the use of large quantities of non-irritating antiseptics in the form of a powder or gauze packing. By the use of a sufficient quantity of a preparation that will not interfere with the process of repair, but that will check the development of if it does not destroy pathogenic organisms, we not only prevent the introduction of germs, but also arrest the development of such as may have found lodgement within the wound. As a rule, a dry dressing is preferable to a liquid dressing for wounds that are expected to heal under a scab, because it will form a better protection by remaining upon the surface better and longer.

While surgeons are quite generally agreed that hydrargyri bichloride cor. stands at the head of the list of chemical disinfectants, the selection of the agent used will ever remain largely one of personal choice of the surgeon. Personally I prefer creolin for disinfecting the field of operation, especially in practice outside of a hospital, because of its easy application, not requiring so many vessels to properly carry on the work.

For packing large cavities we need a prohibitive germicide that is cheap, that is light and bulky, that will not irritate the parts, that will not act as a foreign body, that will not dissolve too rapidly, that will not produce unfavorable systemic disturbances, but will prevent germ development. A combination of boric acid and acetanilid will prevent germ development, but it dissolves too rapidly, and has a tendency to stimulate a serous exudate in the wound. Iodoform is too expensive, too heavy, and may produce too great systemic disturbances when used in large quantities. I am of the opinion that a combination of two or more drugs of this class that have different degrees of solubility and systemic action will give better results than any one remedy that is on the market at the present time, although I have not as yet had an opportunity to use glutol (a combination of gelatin and formalin), a remedy that has recently come into use in human practice for packing cavities where the parts cannot be coapted, nor iodide of starch, a preparation that seems to have a number of the essential attributes.

Cheese cloth, a thin gauzy cloth, that can be purchased at any dry goods store for from three to five cents per yard, when thoroughly boiled in a solution of sodium chloride or boric acid, and dried in an oven, will answer all purposes equally as well as the higher-priced medicated or surgical gauzes on the market. For sterilizing instruments and dressings, such as absorbent cotton, gauzes and bandages, nothing is so efficient as moist or dry heat.

The application of accessory treatment, such as bandages, splints, etc , and the use of a sling will depend largely upon the character of the wound and the temperament of the patient.

This paper has been prepared more especially with reference to the treatment of wounds in the larger domestic animals, but the principles of antisepsis apply equally as well to the smaller animals, differing only in the special application.

In conclusion, I wish to call your attention to a most vital point, and that is, that the surgeon should never lose sight of the fact that while a theory or principle is usually broad enough to cover all cases no set rule can be successfully adopted, but that each and every case should be treated according to its special indication.

Bulletin No. 60 of the Agricultural Experiment Station of Louisiana treats of anthrax and charbon as they specially affect the district of Louisiana, and in the investigations conducted by Dr. W. H. Dalrymple and the State Bacteriologist, W. R. Dodson, many valuable deductions are made. The bulletin closes with the following important paragraph: Relative to preventive vaccine, it is of the utmost importance that it should be fresh and reliable, and that all those handling it, whether dealers in it or stock-owners, should follow carefully the instructions (which generally accompany the material) necessary for its preservation and reliability. If this is not done the vaccine will deteriorate, may become infected, and, in fact, be rendered useless or even dangerous.

THERAPEUTICAL AND PHARMACEUTICAL NOTES.

UNDER THE DIRECTION OF W. J. MARTIN, M.D.C.,
KANKAKEE, ILL.

PARALDEHYDE AND CHLOROFORM FOR ANÆSTHETIC PURPOSES. The *New Orleans Medical and Surgical Journal* for March, 1900, contains an article on this topic by Noto. As a result of experiments on animals, he concludes that the association of paraldehyde with chloroform, owing to its effects, appears to be by far superior to all other methods of mixed anæsthesia proposed by experimenters up to this time. Administering paraldehyde before the inhalation of chloroform, first of all, we remove from the patients who are rebellious or fretful that consciousness of being forced to undergo the chloroform narcosis, and this in certain instances will prove a great practical advantage. The period of chloroform excitement, which often is much protracted and reaches great intensity, is completely suppressed. The profuse secretion of saliva, so disgusting to the patient and also to the operator, and which sometimes becomes dangerous, is done away with, and vomiting is not produced, at least judging from the observations he has been enabled to make thus far.

By previously administering paraldehyde the chloroform anæsthesia is obtained in a very short time, and with a very small dose of chloroform the sleep proceeds soundly, respiration continues calmly, the heart works on with perfect regularity, and the blood-pressure even in the deepest narcosis is strong enough.

Another fact not to be passed over is that with paraldehyde the sleep is much prolonged, even after the cessation of anæsthesia. The patient awakes some little time after the completion of the operation, already revived and without suffering the effects of trauma.

Before ending his memoir, Noto wishes to insist upon one point, with the hope that by having recourse to the association of paraldehyde with chloroform it should be made possible to practice anæsthesia without any danger even to those patients who are affected with heart-disease, and for whom the plain chloroform narcosis is absolutely contraindicated.

We know, indeed, that paraldehyde does not provoke trouble in such patients, and the quantity of chloroform necessary to produce anæsthesia in such cases becomes so small that all danger for the cardiovascular function is considered as avoided.—*Therapeutic Gazette.*

THE EFFECTS AND DANGERS OF CHLORETONE. Dr. R. D. Rudolf (*Canadian Practitioner*) summarizes the results of his investigations as follows: 1. Chloretone would seem, as has been found by Houghton and Aldrich, to be an ideal anæsthetic for physiological work. There might be some doubt about the recovery of the animals, however, and this would limit its use to cases in which recovery is not desired. The preliminary administration of chloroform or ether might be used here, but this increases the risk, of course. 2. It has little or no effect upon the pulse, respiration, and blood-pressure for hours, but eventually, if the dose be large enough, these become depressed and the animal dies, the heart stopping before respiration. 3. Chloretone has a most marked and depressing effect upon the body temperature, lowering this more than any other drug with which we are acquainted, with the possible exception of alcohol. This depressing effect is evident before the animal is even drowsy, and is in ratio to the dose given. It may be partially prevented by keeping the animal very warm. 4. Any drug which can exert such an effect on the total heat of the body is one which requires to be used with great caution in medical practice. This is doubly important, as the drug is very slowly gotten rid of, and we know of no antidote with the exception, perhaps, of external warmth.

HYPNOTICS ANTAGONISTIC TO COCAINE. Gioffredi has found (*Ber. d. Deut. Phar. Ges.*) that cocaine is completely antagonized by various hypnotics, including paraldehyde and the urethans, doses exceeding those otherwise fatal having been administered with impunity when followed by physiologic antidotes. Curious to relate, however, cocaine is not an antidote to the corresponding hypnotics.

LARGE DOSES OF CARBOLIC ACID IN EQUINE TETANUS. Place (*The Lancet*, February 24, 1900) adds an appendix to Atkinson's case of bubonic plague, published in the *Lancet* of December 9, 1899. He states that during the last two years he has been treating tetanus in horses by means of hypodermatic injections of carbolic acid. The mode of procedure is to inject in the neighborhood of the neck and shoulders one drachm of carbolic acid (*British Pharmacopœia*) every two hours for the first thirty-two hours of treatment, and less frequently as occasion may arise afterward. The result is that within an hour there is a large swelling at the seat of injection, which gradually subsides during convalescence, and there is no trace of it left after fourteen days in the case of the injections made during the virulence of the disease. Sometimes, however, in the case of the injections made during the subsidence of the disease, there is a loss of hair. This occasionally persists for weeks, but in no case has it been found to be permanent. The largest amount used in a single case has been thirty-six fluidrachms in eighty-four hours, the patient an Arab horse fourteen years old, which recovered and resumed work on the twenty-second day after the attack. Place has never administered less than sixteen drachms in a successful case, and states that, as in two cases he has seen horses die after the administration by the mouth of half an ounce of diluted carbolic acid given for pneumonia, he can only conclude that in tetanus there is a specific tolerance of the acid, and judging from Dr. Atkinson's case that the same seems to be the case in plague.—*Therapeutic Gazette.*

[We heartily indorse the hypodermatic use of carbolic acid in the treatment of equine tetanus, it having given us better results in combating this most fatal disease than any other single drug or combination of drugs which we have ever used. Our formulæ for administering carbolic acid hypodermatically is as follows: ℞.—Carbolic acid, 95 per cent., two ounces; glycerin puris, one ounce; distilled aqua, one ounce. Mix. Sig. Inject two drachms every two to four hours according to the severity of the case. These injections will cause blebs or puffy swellings of the skin, but these will subside gradually without loss of hair or other inconvenience to the animal. Of course, in the treatment of tetanus by carbolic-acid injections other proper therapeutic measures must be employed, such as the laying open and thorough curetting of the wound when this is practical, and afterward dressing antiseptically; the administering of enemas of warm water and glycerin to overcome constipation, a sloppy nutritious diet, and confining the animal to dark, quiet quarters.—W. J. M.]

In a monograph on the treatment of tetanus with carbolic acid, Dr. V. Ascoli, of Rome, Italy, states his conclusions as follows: "1. Statistics show better results from the carbolic method than from the use of serum. 2. The carbolic acid must be given hypodermatically and in large doses. 3. Under its influence the muscular contractions and spasms diminish to a marked degree. 4. The acid acts in tetanus particularly as an antitoxic and a moderator of reflex activity of the nerve centres. 5. The energetic local disinfection, combined with the support of the patient's strength, are the cardinal points in the treatment of tetanus. 6. Serum treatment is useful as a preventive, and also in the developed disease when it is possible to apply it early or when the production of toxins is still going on. But the results of this method, if they cannot be ignored, are neither convincing nor brilliant. Even if it were the most efficacious method, symptomatic treatment must not be neglected. 7. A patient suffering from tetanus must be treated carefully, regard being had to the wound, to the intensity of the intoxication and its duration, and the special conditions present in the case. Carbolic acid in a large measure fulfils the indications, and is therefore suitable for the majority of cases."

Dr. D. F. Woods (*New York Medical Journal*) has also reported a case of tetanus treated with carbolic acid, and states that this case was the only one he had ever seen recover. He concludes that this agent to be effective must be given in large quantities and heroic doses, and in such is much more reliable than any serum he has ever tried. He also reports a case of tetanus in a horse being cured by the use of this agent at his suggestion.—*Ephemeris.*

APOMORPHINE COUNTERACTED BY BORIC ACID. Dr. C. J. Douglas reports (*New York Medical Journal*) that apomorphine when dissolved in a concentrated solution of boric acid is completely neutralized both as to its emetic and hypnotic properties. This appears to be the first mention of this important fact, and recalls the somewhat similar influence of boric acid on cocaine.

BORAX AS A GENERAL POISON ANTIDOTE. Crouzel (*Progressive Medicine*) suggests that borax dissolved in twenty parts of milk would constitute one of the best general antidotes in cases of poisoning. Most mineral bases, he points out, are precipitated by boric acid as insoluble caseinates with mineral bases ; toxic acids cause coagulation of the casein ; and, lastly, the fat of the milk in a measure protects the mucous lining against irritants.

THE treatment of injured flexion surfaces should always be supplemented by the application of appropriate splints to prevent movement during the healing process.—*Id.*

DEPARTMENT OF SURGERY.

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HOOF DISEASES.

(Continued from page 550.)

IT is base wide, base narrow, toe wide, toe narrow, etc. Study the axis of the foot and hoof—whether it runs normally, or in which direction it deviates. This is important not only in the diagnosis of hoof lameness, but of all other lameness. These points indicate more or less what therapeutic agent is to be employed. This part of the examination for the detection of lameness is, as a rule, utterly neglected, while in reality it is often the key to success.

The horse having thus been carefully sized up, one has now a fair amount of knowledge as to the most probable seat of the lameness, for the reason that certain lameness and certain faulty, or, at least, inferior types of legs and hoofs predispose to certain pathological states.

The examination of the hoof is now in order. Before going into the details of this examination proper, it may be well to allude briefly to the various forms of hoofs, at least the more important ones ordinarily met with.

The large foot is one out of proportion ; it is too voluminous. When met with in the horse worked at a rapid gait the following conditions may be encountered, while the heavy draught is less likely to show them, as it is worked at a slow gait. Concussion being excessive in such a foot, congestion and inflammatory states of the vascular tissues occur, bruises along the bearing surface of the shoe. Animals possessing such a foot are what is vulgarly termed " cows " —that is, they are clumsy, pulling shoes and calking themselves. Usually such a foot is made of brittle horn, the nails holding poorly.

The small foot is one too small for the animal. Such small feet are predisposed to dryness and brittleness. This type of foot stands but little continuous work, breaking down early with foot-soreness. (I do not allude to any special disease when using the term foot-sore).

The narrow foot shows an excessive development of the anteroposterior diameter as compared to its transverse diameter. It is predisposed, the same as the small foot, to contraction, quarter-cracks, bar-cracks, navicular disease, ossification of lateral cartilage.

The flat foot is so called on account of the flatness of its plantar surface. As a rule, it is a large foot with oblique walls, low heels, and voluminous frog. When the plantar surface exhibits no concavity at all it is termed a full foot; while it is known as a pumiced foot when its plantar surface shows a downward bulging that is convexly instead. Such feet, indeed, are predisposed to contusions of the sole, frog, and heels, neat shoeing being a *conditio sine qua non* for their working without lameness. Therefore, loose walls, corns, interfering, calking laminitis, are frequently seen in such feet.

The high-heeled hoof is predisposed to toe-cracks, corns, and bruises in the region of the heels. The low-heeled foot is very sensitive to bruises and contusions of the vascular tissues, quarter-cracks being of frequent occurrence.

These few remarks in regard to the possible diseases of the various hoofs tend to show the importance of being acquainted with the weak points of each hoof. It is, to say the least, disagreeable to be unable to give a definite opinion as to the value of a certain hoof when brought to us for an examination for soundness. I knew of a young veterinarian who condemned a high-priced horse on account of its low-heeled weak feet. The owner of the sale-stable became very abusive and suggested to the intending purchaser to call another veterinarian to settle the question. The writer was selected for this thankless job, and had the pleasure to support the young and by this time much-abused veterinarian in his prognosis, which was "quarter-crack before he is a year older." I took the liberty to add that such forefeet might possibly show seams the first trip the horse would take over the stones. A few days afterward the horse was operated on both fore feet by the writer for quarter-crack. The purchaser at the time of the sale agreed with the seller that no living man could tell when a quarter-crack was due. A law-suit, expert veterinary testimony (oh, ye gods!) wound up this case.

A light-weight hammer and pincers with jaws which open sufficiently wide to easily grasp any two points of the hoof are requisites in the examination of hoof diseases. Supporting leg-lameness being present, and other diseases of the bony column and inhibitory apparatus exhibiting supporting leg-lameness being excluded, the examination of the hoof is indicated.

First, inspect the posture of the patient. Does he toe-out or toe-in or stand straight? Does he point? Has he a large, small, narrow, high-heeled, or low-heeled hoof? Are both feet of the same size? Does he shift the weight often from one foot to the other? Go over every part of the hoof thoroughly and compare it with the same part of the other foot. Having thus thoroughly inspected and compared the hoof as a whole, the quarters, region of the toe, coronet, heels, frog, directions of the bars, condition of the sole, the shoe, the site of the nails, are taken into consideration. The next and most decisive step lies in palpation of the hoof. Here the hand, the hammer, and the pincers are employed. A number of diseased states might have been mentioned under inspection of the hoof, but since palpation would have to be employed to confirm the impressions made upon the visionary apparatus, I shall discuss them under palpation.

The first step is taken to decide whether an inflammatory state of the horn-producing element, the pododerm, exists. For this purpose the sound foot is raised and the pulsations of the metacarpal or digital artery of the lame foot taken. It is absolutely necessary to raise the other foot off the ground when taking the blood-wave of either of the arteries mentioned, as in this way the skin, tendon, etc., of the lame leg are rendered tense, thus giving the arteries a firm foundation, permitting of an exact pulse-taking. There are instances—I refer to the thick-skinned lymphatic animal —where it is impossible to detect any pulsation in either the large metacarpal or digital artery unless the opposite leg is held off the ground by an assistant. Of course, this method of taking the pulse is only necessary in the anterior extremities, not being essential to obtain satisfactory results in the hind legs. On the whole, it is physiological to perceive a limited pulsation along these arteries, this pulse being more marked in the finely-bred, thin-skinned creature than in the tough-hided, lymphatic individual. The beginner will do well to study the pulse in the healthy hoof. Here, again, the writer wishes to draw attention to the fact that in such cases as in all others where room for doubt exists the result obtained by the examination should be compared with the same part of the healthy foot. At the same time increased pulsation does not always mean an inflammation of the pododerm. The increased pulsation is due to an obstruction of the peripheral vessels. The vascular and soft tissues within the unyielding horny capsule, the hoof, are pressed upon and a venous stasis primarily arises. The greater the inflamed area the greater the pulsation of the artery. As stated a moment ago, increased pulsation, while suggestive of a pododermatitis, may follow some other circulatory impediment, thus swelling of the coronary region from a blister or some other disease—disease anywhere along the phalanges as long as accompanied with swelling will of necessity bring with it an increased pulsation of the arteries previously mentioned. Yet practice will enable one to differentiate between the actual throbbing of the artery in a case of true pododermatitis, and the mere fulness of the vessel shows it to depend on a swelling of the subcutis somewhere along the phalanges. To the beginner the following rule is a safe one: "A positive diagnosis of an acute inflammatory process within the horny box can be made if there is an absence of swelling along the phalanges and presence of increased throbbing in the arteries along the fetlock of the lame hoof." It would require more space than a paper of this sort permits to go into the details of the many specific troubles along the phalanges which may lead to diagnostic errors, the writer having dealt with them exhaustively in his work on *Clinical Diagnosis of Lameness in the Horse.* Finally, it is to be remembered that certain hoof diseases, as, for instance, chronic navicular arthritis, do not give rise to increased pulsation of the metacarpal or digital arteries.

The examination having shown excessive pulsation of arteries supplying the hoof with blood, further an absence of swelling along the phalanges, one may be reasonably sure of an acute hoof disease. Now the hoof is placed within both hands, the examining person facing the animal. By placing the hand lightly upon the various parts of the hoof an increase of temperature may be appreciated. The posterior parts are naturally a little warmer than the region about the toe, as they are made up of thinner horn and are more highly endowed with blood supply. While comparing the heat of one part of the hoof with the corresponding part of the other hoof it is well to use one hand only. Should it be desirable to use both hands, then care should be taken that both hands are equally warm, as necessarily very different results will be obtained if one of the examining hands is cold while the other one is warm.

Dr. A. G. Kern, of Knoxville, Tenn., takes an active interest in army legislation, and keeps his associates in eastern Tennessee aggressive and earnest in the work of securing favorable consideration at the hands of "Big Bend State's" Congressional representatives.

DEPARTMENT OF CANINE AND FELINE MEDICINE AND SURGERY.

By Cecil French, D.V.S.,
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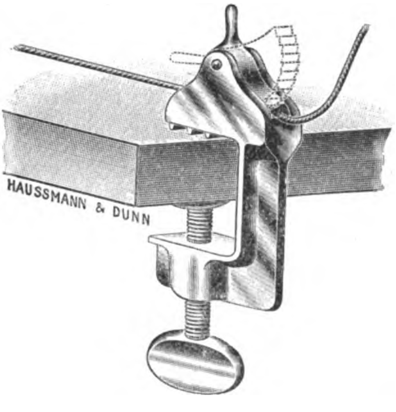
THE DAWSON-FRENCH CANINE HOPPLES.

These hopples are constructed on a plan adapted to canine and feline purposes, and were suggested to me by a contrivance devised by Dr. Charles Dawson, formerly attached to the Department of Pathology, Bureau of Animal Industry, for the purpose of controlling the smaller animals used for inoculation experiments. Messrs. Haussman & Dunn have very kindly interested themselves in my endeavor to secure the production of a perfected article. The main feature of the hopples is their self-locking action. A swinging ratchet arrangement is suspended in a frame through which the control rope passes. The frame is supplied with a screw-clamp by means of which it is attachable to and removable from any table at will. One set of four large and one set of four small noose leg-bands are provided. These will fit any sized animal, and are connected to the control ropes by steel snaps. Should the operator wish to tighten the control rope he does so by merely pulling on it, and the moment he lets it go it is firmly clinched by the ratchet. The animal can be quickly released from the control position at any moment by simply holding back the handle bars, by which the ratchet is prevented from clinching and allows free passage for the rope.



EDITORIALS.

ASSOCIATION USEFULNESS.

THE wealth of a scientific body is only to be measured by the scope of its work.

Its monetary gatherings are ever to be expended in broadening the sphere of its usefulness in the pressing questions of the hour.

Sanitary medicine, bacteriological research, laboratory investigations, national standing, State medicine, municipal problems from a health point of view have been fruitful topics of consideration in American veterinary medicine for many years. Many victories have been achieved, progress has been made, questions of much moment have been solved; but the growth in numbers and strength add greater duties, more serious responsibilities to those charged with official direction than ever before; and how an organized army of nearly five hundred men are to best serve their profession in associated interest during the coming year will be a serious problem for those in official capacity to determine. Surely the stewardship of so large and vigorous a body is an important one. The honor of its chief directorate is freighted with greater and greater responsibilities in a profession historical to-day in its phenomenal growth and influence throughout our land.

ARE WE GROWING TOO FAST?

A WELL-BALANCED ration is the problem to-day in successful animal husbandry. It is the topic of every experiment station, agricultural laboratory, among practical breeders, stock-breeders' associations, and agricultural and stock-breeding journals of the world, havng for its basis the obtaining of the most for the least cost. It aims to secure energy, force, weight values as quickly as is consistent with safety.

May we not liken our Association in its remarkable growth to this great problem?

An organization that is banded together for scientific progress, which has changed its total membership twice in ten years, its field of growth to newer territorial pastures, is confronted with a serious problem in assimilation economics as to how best it can balance the growth of so great an organization and expend well its energy, direct efficiently its force, maintain its resources safely, and reap as its harvest a well-balanced progress along the line of Association work and usefulness.

The struggle for a large Association numerically has gone on apace, but how well we assimilate the added energy, force, power, and worth of the yearly harvest is a matter for serious reflection.

A year or two of thoughtful planning as to how best we can assimilate the great wealth of numbers, to make them more useful and efficient in true Association advancement, is a serious problem of the hour.

Correction. In Dr. French's paper on page 543, September number, by error of the printer, "Carpipes Unilateralis," etc., was made to read "*Carpus* Unilateralis," etc.

A. V. M. A.

THIRTY-SEVENTH ANNUAL CONVENTION, DETROIT, SEPTEMBER, 1900.

For many days prior to the opening session of the Thirty-seventh Annual Convention of the A. V. M. A. there assembled at Detroit veterinarians from all over the country. The time and occasion were fitting, and reached a section of our country that had not felt the influence of a meeting of the national body.

On the morning of September 4th when President Pearson called the convention to order he found on the sound of the gavel the largest number of veterinarians that had ever assembled in a veterinary convention in the United States.

The following list enumerates those who were in attendance at the several sessions of the convention:

Members: Drs. E. B. Ackerman, Brooklyn, N. Y.; A. H. Baker, Chicago, Ill.; Roscoe R. Bell, Brooklyn, N. Y.; George W. Bell, Kingston, Ont.; A. W. Bitting, Lafayette, Ind.; Eugene Burget, Wadsworth, Ohio; S. Brenton, Detroit, Mich.; Tait Butler, Indianapolis, Ind.; A.W. Clement, Baltimore, Md.; T. Bent. Cotton, Mt. Vernon, Ohio; R. R. Dinwiddie, Fayetteville, Ark.; W. H. Dodge, Leominster, Mass.; Wm. .Dougherty, Baltimore, Md.; G. W. Dunphy, Quincy, Mich.; J. O. Greeson, Kokomo, Ind.; J. Hawkins, Detroit, Mich.; W. A. Heck, Maquoketa, Iowa; W. Horace Hoskins, Philadelphia, Pa.; R. S. Huidekoper, Washington, D. C.; J. W. Jamieson, Paris, Ky.; G. A. Johnson, Sioux City, Iowa; Wm. Jopling, Owosso, Mich.; W. H.

Kelly, Albany, N. Y.; M. E. Knowles, Helena, Mont.; G. Ed. Leech, Milwaukee, Wis.; Wm. Herbert Lowe, Paterson, N. J., W. J. Martin, Kankakee, Ill.; Frank C. McCurdy, St. Joseph; Mo.; J. C. McNeil, Pittsburg, Pa.; J. R. Mitchell, Evansville, Ind.; R. C. Moore, Kansas City, Mo.; E. M. Nighbert, Mt. Sterling, Ill.; J. D. Nighbert, Pittsfield, Ill.; Leonard Pearson, Philadelphia, Pa.; Austin Peters, Boston, Mass.; J. M. Phillips, St. Louis, Mo.; E. C. Porter, New Castle, Pa.; E. M. Ranck, Philadelphia, Pa.; L. N. Reefer, Wheeling, W. Va.; John J. Repp, Ames, Iowa; M. H. Reynolds, St. Anthony Park, Minn.; Wm. H. Richards, Emporia, Kansas; J. L. Robertson, New York City, N. Y.; James Robertson, Chicago, Ill.; D. E. Salmon, Washington, D. C.; V. Schaefer, Tekamah, Neb.; Walter Shaw, Dayton, Ohio; Edgar H. Shepard, Cleveland, Ohio; R. V. Smith, Frederick City, Md.; S. Stewart, Kansas City, Mo.; N. I. Stringer, Watseka, Ill.; W. J. Tomlinson, Williamsport, Pa.; George R. White, Nashville, Tenn.; W. L. Williams, Ithaca, N. Y.; J. F. Winchester, Lawrence, Mass.; A. Youngberg, Lake Park, Minn.

Visitors: Drs. Francis Abele, Quincy, Mass.; F. E. Anderson, Findlay, Ohio; W. J. Armour, Goshen, Ind.; G. W. Backner, Bluffton, Ind.; H. B. Baker, Detroit, Mich.; L. F. Baldcock, Birmingham, Mich.; H. B. Bascer, Lansing, Mich.; U. S. G. Bieber, Kutztown, Pa.; E. C. Beckett, Boston, Mass.; H. L. Bellinger, Plainwell, Mich.; Judson Black, Richmond, Mich.; F. M. Blatchford, Brighton, Mich.; J. H. Blattenberg, Lima, Ohio; W. S. Birden, Kingston, Pa.; S. E. Boulter, Niagara Falls, Ont.; J. W. Brodie, Pontiac, Mich.; L. A. Brown, Aylmer, Ont.; C. E. Brownback, Peru, Ind.; J. C. Burneson, Wooster, Ohio; E. H. Callander, Zanesville, Ohio; J. C. Callander, Parkersburg, W. Va.; A. Campbell, Jackson, Mich.; H. T. Carpenter, Ada, Ohio; M. R. Carr, Kirkton, Ont.; G. H. Carter, Saginaw, Mich.; U. S. Cass, St. Louis, Mo.; S. R. Craver, Youngstown, Ohio; J. B. Caughey, Columbus, Ohio; H. P. Clute, Marinette, Wis.; W. E. Clemons, Greenville, Ohio; L. L. Conkey, Grand Rapids, Mich.; A. S. Cooley, Cleveland, Ohio; A. Cornell, Elkton, Mich.; R. A. Craig, Lafayette, Ind.; D. Cummings, Port Huron, Mich.; D. W. Curtis, Detroit, Mich.; Albert E. Cunningham, Cleveland, Ohio; D. A. Davidson, Princeton, Ind.; C. F. Dawson, Detroit, Mich.; J. F. Deadman, Sault Ste Marie, Mich.; J. A. Dell, Ann Arbor, Mich.; W. F. Derr, Wooster, Ohio; D. S. DeWolf, Hart, Mich.; B. A. Dillahunt, Springfield, Ohio; J. Drury, Ypsilanti, Mich.; Mr. W. W. Dixon, New York City, N. Y.; Drs. Charles E. Edwards, St. Thomas, Ont.; J. T. Elliott, Detroit, Mich.;

Wm. Elliott, Hickory Corner, Mich.; Mr. Alex. Eger, Chicago, Ill.; Drs. E. W. Emery, Greenfield, Ohio; H. Emery, Pittsburg, Pa.; J. D. Fair, Berlin, Ohio; W. C. Fair, Cleveland, Ohio; Thos. Farmer, Grand Blanc, Mich.; S. N. Fitch, Auburn, Ind.; J. E. Foster, Coshocton, Ohio; E. T. Frank, Warren, Minn.; B. M. Freed, Sharon, Pa.; Charles B. Frederick, Columbus, Ohio; George Fitchett, Pinnebog, Mich.; L. Frothingham, Boston, Mass.; H. Fulstow, Norwalk, Ohio; L. D. Gibson, Adrian, Mich.; W. A. Giffin, Detroit, Mich.; F. G. Gilbank, Detroit, Mich.; H. M. Gillian, Mason City, Iowa; H. M. Gohn, St. Johns, Mich.; W. R. Granger, Plymouth, Mich.; J. S. Grant, Portland, Mich.; John W. Graves, Hamilton, Ont.; L. K. Green, Detroit, Mich.; L. A. Greiner, Indianapolis, Ind.; W. H. Gribble, Washington Court House, Ohio; W. S. Hamilton, Chelsea, Mich.; A. H. Hartwig, Watertown, Wis.; C. S. Hess, Wabash, Ind.; W. F. Heyde, St. Louis, Mo.; R. C. Hill, West Alexandria, Ohio; W. C. Holden, Delphos, Ohio; John Hooker, New Baltimore, Mich.; C. H. Howard, Calumet, Mich.; R. E. Hunt, Alma, Mich.; Thomas E. Jones, Newark, Ohio; James J. Joy, Detroit, Mich.; W. H. Kerr, Mansfield, Ohio; R. H. Kestell, Ypsilanti, Mich.; J. W. Klotz, Nobleville, Ind.; W. E. Krenler, Wadsworth, Ohio; T. G. Kuff, St. Louis, Mich.; J. Stewart Lacock, Allegheny, Pa.; R. W. McCally, New York City, N. Y.; M. C. McClain, Jeromeville, Ohio; F. McCoy, Chicago, Ill.; R. W. McDonald, Flint, Mich; Wm. McEachran, Windsor, Ont.; Alex. McGregor, Rockport, Ohio; A. McKercher, Lansing, Mich.; W. O. McHugh, Toledo, Ohio; W. R. McMurty, Janesville, Mich.; Wallace McQueen, Oxford, Mich.; E. D. McQueen, Lowell, Mich.; F. W. Menhennett, Ishpeming, Mich.; W. A. Meredith, Corry, Pa.; Thomas Meredith, Jamestown, N. Y.; A. E. Metzger, Clyde, Ohio; George C. Moody, Mason, Mich.; R. J. Morrison, Detroit, Mich.; C. A. Miller, Louisville, Ky.; S. A. Myers, Wilmington, Ohio; William F. Myers, Fort Wayne, Ind.; J. T. Nattress, Delavan, Ill.; M. C. Newburg, Hanover, Mich.; John V. Newton, Toledo, Ohio; Charles N. Nye, Coopersville, Mich.; C. L. Osgood, Samaria, Mich.; H. F. Palmer, Detroit, Mich.; A. J. Payne, Cincinnati, Ohio; S. A. Pinte, Lexington, Ky.; N. Rectenwald, Pittsburg, Pa.; A. Roberts, Waukesha, Wis.; J. E. Rodger, Anderson, Ind.; William Rose, Grand Rapids, Mich.; Frederick P. Ruhl, Fairmont, W. Va.; Wm. A. Rushworth, Chicago, Ill.; A. J. Savage, Colorado Springs, Col.; Chas. Schmitt, Dodgeville, Wis.; W. M. Simpson, Malden, Mass.; C. Rowland Simpson, Somerville, Mass.; C. S. Shier, Detroit, Mich.; D. King Smith, Toronto, Ont.; H.

S. Smith, Albion, Mich.; R. N. Steele, Chicago, Ill.; S. S. Snyder, Cedarburg, Wis.; C. N. Stowe, Saginaw, Mich.; C. C. Stevens, Yale, Mich.; A. G. Tegg, Rochester, N. Y.; A. H. Tanner, Ashtabula, Ohio; J. H. Tennent, London, Ont.; Thos. Thacke, Renfrew, Ont.; H. E. Titus, Lafayette, Ind.; F. Torrance, Winnipeg, Manitoba; W. J. Torrance, Cleveland, Ohio; W. H. Turner, North Amherst, Ohio; S. S. Treadwell, Englewood, N. J.; V. C. Vaughan, Ann Arbor, Mich.; Z. Veldhius, Tremont, Mich.; John Vhay, Detroit, Mich.; George Waddle, Hastings, Mich.; C. A. Waldron, Tecumseh, Mich.; H. C. Wann, Charlevoix, Mich.; J. E. Ward, Perry, Mich.; Mr. L. D. Watkins, Manchester, Mich.; Drs. George A. Waterman, Lansing, Mich.; F. C. Wells, Warren, Mich.; R. W. Whitehead, Youngstown, Ohio; A. W. Wier, Greensville, Pa.; Wm. M. Wilson, Hartstown, Pa.; W. J. Williams, Franklin, Ind.; W. E. Wight, Allegheny, Pa.; J. C. Whitney, Hillsdale, Mich.; P. W. Wooly, Lapeer, Mich.; I. A. Wynn, Kenton, Mich.; D. P. Yonkerman, Kalamazoo, Mich.; Mr. A. H. Zenner, Detroit, Mich.

Lady Visitors: Mrs. E. B. Ackerman, Brooklyn, N.Y.; Mrs. L. Brenton, Miss Lillian Brenton, Detroit, Mich.; Mrs. A. H. Baker, Chicago, Ill.; Mrs. G.W. Bell, Kingston, Ont.; Mrs. W. S. Brown, Pa.; Mrs. J. C. Burneson, Wooster, Ohio; Mrs. A. Campbell, Jackson, Mich.; Mrs. H. T. Carpenter, Ada, Ohio; Mrs. Cheesbrough, Detroit, Mich.; Mrs. F. A. Cooley, Cleveland, Ohio; Mrs. Cowing, Detroit, Mich.; Mrs. D. W. Curtiss, Cadillac, Mich.; Mrs. D. A. Davison, Princeton, Ind.; Mrs. J. A. Dell, Ann Arbor, Mich.; Mrs. W. F. Derr, Wooster, Ohio; Mrs. G. W. Dunphy, Quincy, Mich.; Mrs. H. Emery, Pittsburg, Pa.; Mrs. J. D. Fair, Berlin, Ohio; Mrs. W. A. Giffen, Detroit, Mich.; Miss Ella Gribble, Washington Court House, Ohio; Mrs. Guerney, Detroit, Mich.; Mrs. A. H. Hartwig, Watertown, Wis.; Mrs. W. A. Heck, Maquoketa, Iowa; Mrs. T. B. Hillock, Columbus, Ohio; Mrs. W. Horace Hoskins, Philadelphia, Pa.; Mrs. G. A. Johnston, Sioux City, Iowa; Mrs. W. H. Kelly, Albany, N. Y.; Mrs. G. Ed. Leech, Milwaukee, Wis.; Mrs. E. D. McQueen, Lowell, Mich.; Mrs. Wm. McEachran, Windsor, Ont.; Miss J. Meredith, Jamestown, N. Y.; Mrs. A. E. Metzger, Clyde, Ohio; Mrs. J. R. Mitchell, Evansville, Ind.; Mrs. A. Roberts, Waukesha, Wis.; Mrs. F. P. Ruhl, Fairmont, W. Va.; Mrs. E. H. Shepard, Cleveland, Ohio; Mrs. C. R. Simpson, Summerville, Mass.; Mrs. S. Stewart, Kansas City, Mo.; Mrs. J. H. Tennent, London, Ont.; Mrs. W. H. Turner, North Amherst, Ohio; Mrs.

R. A. Walster, West Eaton, Mass.; Mrs. L. D. Watkin, Manchester, Mich.; Mrs. J. C. Whitney, Hillsdale, Mich.; Mrs. W. E. Wight, Allegheny, Pa.; Mrs. A. W. Weir, Greenville, Pa.; Mrs. W. J. Williams, Franklin, Ind.; Mrs. John Vhay, Detroit, Mich

President Pearson found much pleasure in the privilege of introducing to the members assembled Mayor William C. Mayberry, of the city of Detroit. In welcoming the delegates and members of the profession to Detroit he cited the early history of the settlement and growth of the city, and paid a glowing tribute to the pioneers of that territory, touching upon the growth and progress of medicine and its broad character of to-day compared with the narrow attitude of those engaged in scientific medicine in the early years of its history, and most fittingly commended the generous, catholic-spirited disposition of those engaged in the practice of medicine to-day in conferring knowledge gained that all may profit by the same, the human race being the special beneficiary.

He commended the spirit and sentiment of those who gave much time and consideration to the welfare of the dumb animals in protecting them from cruelty, and the growth of this work through the great director, Henry Bergh, whose devotion to the humane aspect of this field of work had contributed more than history can ever recount, associated as his work was with that of the veterinary profession. He seemed well informed on the progress of veterinary medicine, and gave a most generous welcome to the members of the convention on behalf of the city, concluding with a wish that they would return home well pleased and well repaid with their deliberations in Detroit.

President Pearson then asked Dr. W. Horace Hoskins, of Philadelphia, to respond to the Mayor's cordial greetings. After an amusing reference to Mayor Mayberry's success in obtaining the mayoralty of Detroit and his own unsuccessful effort to obtain the same high honor in Philadelphia, Dr. Hoskins centred his remarks upon the grave responsibility that rests upon those who hold high official place in city, State, and nation in these times, when the growth of sanitary science points so clearly to one true plan and means of promoting and maintaining the health of the people, thus assuring a security and freedom from many dangers in an unguarded food-supply, situations that no longer hide from the scientific eye the insidious dangers and which brought with this era of advancement, ways and means of controlling and preventing the dangers resulting therefrom.

These introductory remarks were followed by the presentation of the President's address.[1]

In his review of the progress in general, the growth of the Association, and the many aspects of its work, he laid much stress upon the broader field of employmentof the veterinarian that might be made, and referred to veterinarians as *animal engineers* in the field of animal husbandry. The address was replete with excel lent thoughts, suggestions, and comments, and should be read and thoroughly considered by every veterinarian in the land.

The minutes of the preceding meeting at New York having been printed and placed at the command of every member, it was deemed unnecessary to read them at this meeting, and the President at once proceeded to call for a report of the Executive Committee. The following recommendations of the Executive Committee were received and approved by the Association:

First, the creating of two additional vice-presidents, making the number five instead of three.

The committee having decided the charges of the violation of the Code of Ethics in unprofessional advertising by Dr. W. E. Wight, of Allegheny, Pa., well founded, advised his expulsion, which was unanimously agreed to by the Association.

Charges of plagiarism made against Dr. George B. Blackman, of Georgia, were received. The Secretary was directed to instruct Dr. Blackman to appear at the next annual meeting to answer for the same.

In the charges against Dr. A. J. Kline, for advertising contrary to the Code of Ethics, action was suspended upon the request of Dr. Kline and assurance of freedom from the same in the future.

At a previous meeting of the Association the resignation of Dr. R. R. Dinwiddie was held over, with a request that the officers would urge his continuation as a member of the Association, which was favorably acquiesced in by Dr. Dinwiddie.

The resignation of Dr. Charles W. Heitzman, of Louisiana, he having engaged in the practice of human medicine, was, upon recommendation, accepted by the Association.

The proposal of Prof. Theodore Kitt for honorary membership was approved by the Executive Board, and under a suspension of the by-laws he was unanimously elected.

During the several meetings of the Executive Committee the following applications for membership were examined and favorably recommended and the applicants elected to membership by the Association:

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[1] See page 521, September number.

Francis Abele, Jr., V.S. (Ontario V. C., 1900), Quincy, Mass.; vouchers, E. C. Porter, James Robertson. F. E. Anderson, V.S. (Ontario V. C., 1886), Findlay, Ohio; voucher, Tait Butler. E. C. Beckett, M.D.V. (Harvard, 1887), Boston, Mass.; vouchers, A. Peters, J. F. Winchester, T. B. Cotton. J. H. Blattenberg, V.S. (Ontaric V. C., 1892), Lima, Ohio; voucher, T. B. Cotton. J. C. Burneson, V.S. (Ontario V.C., 1891), Wooster, Ohio; vouchers, L. C. Porter, J. J. Repp, T. B. Cotton. William J. Butler, V.S. Ontario (V. C., 1889), Fond du Lac, Wis.; vouchers, G. W. Butler, R. H. Harrison. U. S. Cass, V.S. (Ontario V. C., 1892), St. Louis, Mo.; vouchers — —. Charles Caster, V.M.D. (University of Pennsylvania, Vet. Dept., 1894), E. Las Vegas, N. M.; vouchers, Tait Butler, S. G. Hendren. W. G. Clark, M.D.C. (Chicago V. C., 1893), Marinette, Wis.; voucher, R. H. Harrison. H. P. Clute, V.S. (Ontario V. C., 1887), Marinette, Wis.; voucher, R. H. Harrison. A. S. Cooley, D.V.S. (Chicago V. C., 1887), Cleveland, Ohio; vouchers, R. C. Moore, F. C. McCurdy, A. H. Baker. Robert A. Craig, D.V.M. (Iowa State College, 1897), Lafayette, Ind.; vouchers, A. W. Bitting, Tait Butler. E. C. Crevier, D.V.S. (Montreal V. C., 1883), Detroit, Mich.; voucher, S. Brenton. A. E. Cunningham, V.M.D. (University of Pennsylvania Vet. Dept., 1898), Cleveland, Ohio; voucher, E. M. Ranck. D. W. Curtis, V.S. (Ontario V. C., 1892), Cadillac, Mich.; voucher, G. W. Dunphy. D. A. Davison, D.V.S. (Chicago V. C., 1892), Princeton, Ind.; voucher, J. R. Mitchell. W. P. Ellenberger, D.V.S. (Columbian University, 1897), Wadsworth, Ohio; vouchers, G. R. White, W. C. Rayen. H. James Elliott, M.D.V. (McKillip V. C., 1900), Winnipeg, Manitoba; voucher, W. J. Hinman. William C. Fair, V.S (Ontario V. C., 1871), Cleveland, Ohio; vouchers, Walter Shaw, E. H. Shepard. Langdon Frothingham, M.D.V. (Harvard V. C., 1889), Boston, Mass.; vouchers, Austin Peters, J. F. Winchester. Harry Fulstow, V.S. (Ontario V. C., 1892), Norwalk, Conn.; voucher, Joseph Roberts. Johnson Gibbons, M.R.C.V.S. (Dick, 1880), Vancouver, B. C.; voucher, Charles H. Higgins. H. M. Gohn, V.S. (Ontario V. C., 1893), St. Johns, Mich.; voucher, George W. Dunphy. L. Kenneth Green, V.M.D. (University of Pennsylvania, 1894), Detroit, Mich.; vouchers, G. W. Dunphy, S. Brenton. John W. Groves, D.V.S. (McGill University, 1899), Hamilton, Ont.; voucher, Chas. H.

Higgins. Robert Hamilton, M.R.C.V.S. (Glasgow, 1888), Victoria, B. C.; voucher, Chas. H. Higgins. Joseph T. Hernsheim, V.M.D. (University of Pennsylvania Vet. Dept., 1897), Kenosha, Wis.; voucher, R. H. Harrison. R. W. Hewett, D.V.S. (A. V. C., 1894), Milwaukee, Wis.; voucher, R. H. Harrison. William F. Heyde, V.S. (Ontario V. C., 1894), St. Louis, Mo.; vouchers, E. M. Nighbert, J. Hawkins. C. H. Howard, M.D.V. (McKillip V. C., 1899), Calumet, Mich.; vouchers, G. W. Bell, G. W. Dunphy. Louis A. Klein, V.M.D. (University of Pennsylvania Vet. Dept., 1897), Philadelphia, Pa.; vouchers, Leonard Pearson, C. J. Marshall. J. Stewart Lacock, V.M.D. (University of Pennsylvania Vet. Dept., 1895), Allegheny, Pa.; vouchers, W. Horace Hoskins, Leonard Pearson. J. A. McCrank, D.V.S. (McGill University, 1891), Plattsburg, N. Y.; voucher, W. H. Kelly. Stewart W. McClure, V.M.D. (University of Pennsylvania Vet. Dept., 1898), Helena, Montana; voucher, W. Henry Kelly. William McEachran, D.V.S. (McGill University, 1880), Windsor, Ont.; vouchers, A. W. Clement, R. S. Huidekoper. C. M. McFarland, D.V.S. (Kansas City V. C., 1900), Cincinnati, Ohio; vouchers, R. C. Moore, S. Stewart. C. A. Miller, D.V.S. (Chicago V. C., 1890), Louisville, Ky.; vouchers, E. M. Nighbert, J. Hawkins. Robert J. Morrison, V.S. (Ontario V. C., 1892), Detroit, Mich.; voucher, S. Brenton. William F. Myers, D.V.S. (Chicago V. C., 1889), Fort Wayne, Ind.; voucher, J. R. Mitchell. G. E. Nesom, D.V.M. (Iowa State College, 1898), Clemson College, S. C.; voucher, Benjamin McInnes. L. A. Nolan, V.M.D. (University of Pennsylvania Vet. Dept., 1900), Baltimore, Md.; voucher, Wm. Dougherty. Frederick Ruhl, D.V.S. (A. V. C., 1895), Fairmont, W. Va.; vouchers, W. Horace Hoskins, Leonard Pearson. William H. Rushworth, M.D.C. (Chicago V. C., 1893), Chicago, Ill.; vouchers, Joseph Hughes, T. A. Bown. Charles Schmitt, M.D.C. (Chicago V. C., 1892), Dodgeville, Wis.; voucher, R. H. Harrison. H. C. Simpson, D.V.S. (Kansas City V. C., 1898), Denison, Iowa; voucher, S. Stewart. S. S. Snyder, D.V.S. (Chicago V. C., 1887), Cedarburg, Wis.; voucher, R. H. Harrison. Adolf Stauffer, V.S., Covington, Ky.; voucher, J. W. Jamison. James J. Summerfield, D.V.S. (University of California, 1897), Santa Rosa, Cal.; voucher, Fred. E. Peirce. Harry E. Titus, D.V.M. (Iowa State College, 1898), Lafayette, Ind.; vouchers, A. W. Bitting, Tait Butler. F. Torrance, D.V.S. (McGill University, 1882), Winnipeg, Manitoba; vouchers, A. W. Clement, R. S. Huidekoper.

L. Van Es, M.D., V.S. (Ontario V. C., 1893), Mobile, Ala.; voucher, C. A. Cary. A. R. Wake, D.V.M. (Iowa State College, 1894), Cudahy, Wis.; voucher, R. H. Harrison. D. P. Yonkerman, V.S. (Ontario V. C., 1881), Kalamazoo, Mich.; vouchers, Wm. Jopling, G. W. Dunphy.

Several applications were laid over pending further investigation of the qualifications of the applicants.

The report of the Executive Board was followed up by the committee reports. The first one responded to was that of Publications, through the Chairman, Dr. W. L. Williams, showing the cost of reproducing the proceedings of the Association and distribution of the copies printed.

The Committee on Army Legislation, through its Chairman, Dr. D. E. Salmon, presented its report.[1] After reviewing the vast work done by the committee the report closed with a most thoughtful and touching appeal to the members of the profession to continue in the good work, that its achievements may triumph at the next session of Congress.

(To be continued.)

Dr. G. W. Dunphy, of Quincy, Mich., seemed to be at every point during the convention, and responded to every demand and need of the visitors on that occasion.

Every Michigan veterinarian seemed to be loaded with ammunition and determined to spend its force on the JOURNAL.

That veteran Association member, Dr. Wm. Dougherty, of Baltimore, Md., became as spry as a football player under the soothing influences of the springs at Mt. Clemens, near the Convention city.

Dr. A. H. Baker, of Chicago, always stands up for the West and leads all the movements "agin" the East.

The serious, thoughtful countenance of Dinwiddie, of Arkansas, never portrays what is coming next when in an argumentative mood on the floor.

Dr. G. R. White, of Nashville, says that the new veterinary college of that city will not down for want of a faculty.

Dr. G. Ed. Leech, of Milwaukee, Wis., was the leader of the McKinley forces in that State.

Dr. T. Bent Cotton, of Mt. Vernon, Ohio, was often found in the hotel corridors, reclining on an easy couch, swapping horse stories with his colleagues of the Convention.

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[1] Will be published in November number.

Dr. S. Brenton, of Detroit, Mich., was never happier than when enjoying the privilege of entertaining his colleagues at Detroit.

Dr. J. W. Jamieson, of Paris, Ky., was the sole representative of the " Blue Grass State," and found many willing listeners to the almost fairy-like tales of the thoroughbreds of " Old Kentucky."

Dr. D. E. Salmon proved a happy toast-master, and his versatile knowledge of his fellow-members made many telling points as he called them to respond on topics of professional interest.

An Atlantic City boom kept Lowe, of New Jersey, preoccupied and hustling all the time.

Drs. L. N. Reefer, of Wheeling, W. Va., and J. C. McNeil, of Pittsburg, Pa., were looked upon as well versed in political methods and plans.

Dr. J. F. Winchester, of Lawrence, Mass., met a fraternal companion at every point and place; he carried with him from Massachusetts a message of peace among the profession in the " Bay State."

Dr. John J. Repp, of Ames, Iowa, was hourly concerned as to the public attitude of the Convention on the leading questions of the profession as they exist in these days of rapid changes.

That hustling Montana man, Dr. M. E. Knowles, of Helena, says the Association must see the Yellowstone Park in 1902.

Strenuous Peters, of Boston, Mass., seemed weary of the quietude and peace that prevail over veterinary sanitary police measures in Massachusetts.

Dr. G. A Johnson, of Sioux City, Iowa, was hourly concerned over the rushing of the programme through on time.

Reynolds, of the Publication Committee, found his hands full in keeping track of the Convention work, directing the strength of the Western members of the profession, with his weather eye open for new points in control work.

Kelly, of Albany, N. Y., seemed lost without his old companion, Hinkley, of Buffalo, now of Atlanta, Ga.

Ranck, of Philadelphia, amused and entertained the ladies with his exhibition of rattlesnakes.

Bell, of Brooklyn, forgot all about the crops in Virginia about election time, and is a thorough believer in passing the offices around.

One of the chief centres of attraction during the Convention was the headquarters of the Army Legislation Committee, presided over by Veterinarian Huidekoper, ably assisted at times by Knowles, of Montana, and Beckett, of Massachusetts.

Conkey, of Grand Rapids, said that while the weather was hot the Convention was a cold place for strangers.

Heyde, of St. Louis, Mo., indicated by his card that he must have a cinch on all the breweries of that city.

Dr. James Robertson, of Chicago, Ill., was there to defend the action of the State Veterinary Examining Board for having granted the registration of nearly 700 veterinarians in the "Prairie State."

Dr. E. C. Porter, of New Castle, Pa., could hardly restrain himself from holding a coroner's inquest on the dogs at Parke, Davis & Co.'s, though they were only under the influence of chloretone.

Jopling, of Owosso, Mich., came down to the Convention loaded with heavy ammunition for big game; the JOURNAL seemed a favorite target for his shots.

Clement, of Baltimore, was the centre of much sympathy over his loss of the State Veterinarianship of "Maryland, my Maryland."

Ackerman, of Brooklyn, hid many of the cares and evidence of age and great responsibilities by the removal of the hirsute adornment of his face.

Stewart, the ever-efficient Secretary, had his resignation written out in his inside pocket, but the members of the Convention would not allow him to unbutton his coat for its presentation.

Butler, of Indianapolis, was full of reminiscences, and had a multitude of experiences to relate of civil practice, agricultural college work, live-stock editorship and as a Southern breeder of a cross between razorbacks and Western lard makers.

Dr. D. King Smith, of Toronto, Ont., was a welcome visitor, and added much interest to the meeting by his exhibition of frozen specimens from the college museum.

The Southern press have been quick to recognize with approval the recognition accorded in official place of Southern veterinarians, and view with much interest the growing strength of the veterinary profession in the South.

The JOURNAL is in receipt of many favorable expressions for Atlantic City in 1901.

Some of the ladies who were present at Detroit are mourning the fact that they have no vote at this time. Perhaps the winning influences of the gentler sex upon those of the masculine type will find expression through them and their wishes be granted for Atlantic City.

One enthusiastic member in favor of Atlantic City has written one of the ladies present at Detroit in favor of Atlantic City, on the score that the "boardwalk" is so much better for walking than the streets of Detroit.

Atlantic City will open wide her doors for the veterinarians in September, 1901. Many of the leading hotels have large assembly rooms where the sessions of the Convention could be held.

Charleston, S. C., is active in the field for the place of meeting for 1901, and strongly urges the merits of another visit to the South and the selection of Charleston, with the attractions of its exposition, as a suitable place for 1901. Ex-State Secretary Dr. McInnes, always an active veterinarian and much interested in the advance of the profession in the South, and especially in the Carolinas, is earnestly at work to obtain this recognition for 1901. The pleasure of an ocean coast trip to those in the East is one of the many attractions he urges in behalf of Charleston.

Resolutions adopted at Detroit.

Whereas, This our first meeting in this great Convention City of Detroit has been marked by an attendance in excess in number of any prior meeting; and

Whereas, The excellent work done by the local committee of arrangements, the cordial reception of the chief magistrate of the city, the courtesies of the press, the intense interest of the Michigan State Association members, the kindness of the ladies of Detroit and vicinity, have all contributed much to the pleasure and profit of our meeting; therefore be it

Resolved, That this Association tender their sincere thanks and express their appreciation of the courtesies extended us, and trust that our meeting in this city may contribute much to the welfare and advancement of the profession in Michigan, Canada, and the Central West.

Whereas, Cities are now recognizing the importance of dairy and meat-inspection as essential to the protection of public health,

Be it resolved, That we commend to their consideration the selection of men specially trained for the execution of their work, in order that it may be effective. The veterinarian, by his training and his knowledge of animals in health and disease, is pre-eminently better qualified for these positions than any other class of people. We would also commend the adoption of the rules and regulations of the Bureau of Animal Industry pertaining to meat-inspection as far as they are applicable to the conditions.

Whereas, The bill for the establishment of an organized Veterinary Corps in the United States Army, which passed the U. S. Senate as "Section 14 of S. 4300," a bill for the efficiency of the army (known as the Army Reorganization Bill), and is now under consideration by the Military Committee of the House of Representatives, provides for such a service as has been found necessary and exists in the armies of all civilized countries; and

Whereas, Under the system of administration in the U. S. Army an efficient and economical service cannot be had in any other way than that provided for in our bill, any more than any business house could employ thirty or fifty workmen effectively without a foreman or superintendent; and

Whereas, Any compromise simply of rank without organization will not increase the efficiency of the army, and will set back the proper recognition of the profession a quarter of a century; and

Whereas, The eight thousand veterinarians in the United States to-day represent a profession, and are not to be classed on the pay-list with teamsters, as part of them are in the U. S. Army under the present system,

Therefore, We demand an organized Veterinary Corps as provided for in S. 4300 without change or amendment when this bill passes, or as a part of the first Army Bill which does pass in its place when Congress reconvenes, and we will as a body and as individuals use our best and strongest efforts to secure the passage of said bill.

Whereas, The ability of the veterinarian to promote the health of the public and of the animals intrusted to his care can be increased only by his more thorough education; therefore be it

Resolved, That we believe that those intrusted with the management of the veterinary schools of America should put forth every possible effort to lengthen the period of instruction required for graduation, to strengthen and make uniform the curriculum and to elevate the standard of matriculation examinations.

Whereas, We believe that the time has arrived in the history of our profession and in the history of our stock-breeding industry when the experiment stations of our various States and Territories should undertake the work of research in regard to the physiology and diseases of domestic animals in a more comprehensive manner than has yet been done; therefore be it

Resolved, That this Association recommend to the governing boards of the various stations that they give this branch of station work more liberal support.

Whereas, The American Veterinary Medical Association has learned with much satisfaction and pleasure of the recent amalgamation of the three State Societies of New Jersey into the Veterinary Medical Association of New Jersey; and, *Whereas,* In place of factional discord and weakness, we have, as the result of this amalgamation, unity, harmony, and strength in the profession throughout that State; therefore, be it

Resolved, That the congratulations of this Association be extended to the profession of the State of New Jersey and to that indefatigable worker and organizer, Dr. Wm. H. Lowe, of this Association, through whose labors this much to be desired event has been accomplished.

Whereas, It has pleased Almighty God to remove from our midst our esteemed colleague, Dr. Maurice O. Connell, of Massachusetts; therefore, be it

Resolved, That this Association expresses its sincere regrets and extends to his family its sincere sympathy in their great loss; and be it further

Resolved, That these resolutions be spread on the minutes and a copy sent to the bereaved family.

Whereas, It has pleased Almighty God to remove from our midst our esteemed colleague, Dr. C. A. Mackey, of New York; therefore, be it

Resolved, That this Association expresses its sincere regrets and extends to his family its sincere sympathy in their great loss; and be it further

Resolved, That these resolutions be spread upon the minutes and a copy sent to the bereaved family.

Whereas, It has pleased Almighty God to remove from our midst our esteemed colleague, Dr. E. M. Heath, of Connecticut; therefore, be it

Resolved, That this Association expresses its sincere regrets and extends to his family its sincere sympathy in their great loss; and be it further

Resolved, That these resolutions be spread upon the minutes and a copy sent to the bereaved family.

Whereas, It has pleased Almighty God to remove from our midst our esteemed colleague, Dr. M. J. Tewey, of New York; therefore, be it

Resolved, That this Association expresses its sincere regrets, and extends to his family its sincere sympathy in their great loss; and be it further

Resolved, That these resolutions be spread upon the minutes and a copy sent to the bereaved family.

W. HORACE HOSKINS,
AUSTIN PETERS,
WM. HERBERT LOWE,
A. W. BITTING,
JOHN J. REPP,
Committee.

SIDE LIGHTS OF THE ERIE CONVENTION.

President Harger will take a post-graduate course in the geography of Pennsylvania so as not to miss any more county secretaries.

Recording Secretary Marshall had some difficulty in finding a berth, owing to one of the gentler sex having pre-empted the one he had purchased.

Ex-President Jobson vouches for Congressman Sibley as a supporter of the bill for an army veterinary corps.

Chairman Irons proved a whole-souled entertainer, and was ably assisted by Drs. Jobson and Meredith.

Some seven new members were added at Erie to our already strong organization.

Our Association knows no political distinctions, and it gladly welcomed to membership Democratic Chairman Fry, of Centre County.

"Rattlesnake Joe," of Brookville, has a strong rival in the field of snakes in Corresponding Secretary Ranck.

Red-headed and hopeful ex-Secretary Rhoads was much missed, and his sonorous voice unheard along the shores of Lake Erie.

State Veterinarian Pearson has become quite a sketch artist, and loves to paint pictures of "Blazes Teddy Roosevelt" and pass around among the berths to awaken those whose slumbers linger after daylight.

Central Pennsylvania was well represented at Detroit and at Erie by Drs. Wier, Porter, Emery, Meredith, and William D. Wilson.

The sage of Reading, Dr. Noack, was one of the absent familiar faces at the semi-annual meeting at Erie.

Dr. Phillips, of North East, is a successful raiser of delicious grapes, and his great, big-hearted generosity would not let him forget the boys at Erie. He was lined up with Hoskins, of the JOURNAL, and the contrast in weights was well marked.

Dr. Bryce, of Erie, a graduate of Toronto, Class of 1870, could not withstand the temptation, and now will be a strong rival in Association stewardship.

Secretary Marshall, having become affluent and corpulent in veterinary practice, was several times mistaken for Mark Hanna.

Cleveland, Ohio, was represented by Dr. A. E. Cunningham; Dunkirk, N. Y., by Dr. C. H. Jewell; North Collis, N. Y., by Dr. John Gobin.

Drs. Pearson, Harger, Marshall, Ranck, and Hoskins represented Eastern Pennsylvania at Erie.

Where are the Rayners and Foelker? was many times asked.

City Veterinarian McNeil, of Pittsburg, was so completely overcome by the generous welcome at Detroit that he was unable to reach Erie to there tell his colleagues of the now famous meeting.

Coroner Porter, of Newcastle, never worries about inquests when Association meetings call him from home.

Member Irons, of Erie, was one of the strong advocates of the law passed in 1893 regulating the licensing of stallions.

AMONG THE COLLEGES.

United States College of Veterinary Surgeons. In the new catalogue for 1900–1901 the only change noted is that in the professor of general pathology, J. B. Nichols, M.D., taking the place of Dr. Charles F. Dawson. The Chair of Professor of Anatomy remains vacant.

Chicago Veterinary College. Catalogue for 1900–1901 announces changes in Faculty as follows: As the Professor of Dental Surgery, James Robertson, M.D.C., takes the place of G. E. Totten, M.D.C.; John D. Robertson, M.D., has taken the place of Edson B. Fowler, A.B., M.D., as Professor of Chemistry and Physics; O. H. Leonhart, M.D.C., Assistant to the Chair of Anatomy, in place of B. W. Murphy, M.D.C.

McKillip Veterinary College. Catalogue 1900–1901. Very few changes noticed. E. Merillat, A.B., M.D.V., takes the place of F. Schoenleber, M.S.A., D.V.S., as Dean and Professor of Anatomy and Histology; he also takes the place of S. G. Burkholder, M.D., D.V.S., as Clinician in Meat-inspection. Samuel E. Huntsberger, M.D.V., takes the place of J. B. Boomer, M.D.V., as Professor of Materia Medica and Pharmacy and on the Practicing Staff and as Laboratory Instructor. Added to the list of Professors Emeriti: F. S. Schoenleber, M.S.A., D.V.S.; J. B. Boomer, M.D.V., and Olof Schwartzkopf, V.M.

Ontario Veterinary College. The 1900 and 1901 catalogue makes no change in the staff of instructors. Several new works have been added to the list of text-books. The use of sectional frozen specimens of the entire horse, sheep, and other animals is now a very practical form of instruction adopted in this school.

FOR SALE. BARGAIN.

A rare chance for a Veterinarian to secure a good established practice of twelve years in a town of 2500 population in Western New York. Fine farming locality, no competition nearer than nine miles. Also, in connection with above practice, a first-class horse-shoeing trade, averaging $15.00 per day year round. Good reasons for selling; terms easy. Do not write unless you mean business and have $500, then address

JOURNAL OFFICE.

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ANTISEPTIC THERAPEUTICS.[1]

BY J. F. WINCHESTER, B.SC., D.V.S.,
LAWRENCE, MASS.

IN presenting this subject it is not necessary to introduce new matter, as new material is very likely to be misleading. Frequently theories are advanced, and accepted for a while, but in a short time are disproved. When old material is worked up with the view of showing that it was originally started on sound foundations, then a paper of this kind becomes useful. It becomes useful in another way, for if one can only say something calculated to create discussion and to encourage a free interchange of opinion, thus further good comes from it.

At the outset it is well to bear in mind what is meant by therapeutics and what an antiseptic is.

Therapeutics is that part of medicine which relates to the composition, the application, and the modes of operation of the remedies for diseases. It not only includes the administration of medicines, properly so-called, but also hygiene and dietetics or the application of diet and atmospheric and other non-medicinal influences to the preservation or recovery of health.

Dr. C. M. Sternberg tells us that by an antiseptic we mean an agent which prevents septic decomposition by preventing the development of the microörganisms which cause it, and the term is extended to the restraining influence exercised upon other microörganisms of the same class, including the pathogenic bacteria, or germs of infectious diseases. Miguel has formulated a table of the value of various antiseptics, the proportion being that in which the agents named permanently prevented the development of any of the microörganisms floating in the atmosphere—*i. e.*, the organic solution was freely exposed to the air and the test consisted in its permanent preservation from putrefactive changes. If Miguel had protected his solutions from atmospheric organism and had inoculated them with pure culture of pathogenic bacteria, the results would have been still more favorable, and after a time, which would be different for different bacteria, he would have found that the pathogenic bacteria introduced into his culture media would have lost their ability to grow in a favorable medium.

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[1] Presented before the meeting of the American Veterinary Medical Association, Detroit, Mich., September, 1900.

So, too, in therapeutics, if we can restrain the development of a pathogenic microörganism, we practically render it harmless, or at least restrict its power for mischief within limits which are compatible with the safety of the patient.

INDICATION. The term indication is used by the therapeutist as equivalent to "the pointing of nature for relief." The success of the physician depends on his skill in reading the indications. In many instances the indication is not for a single remedy, but for several, which, by acting together, will produce a combined result.

CAUSES. In studying the cause of an existing disorder for therapeutic purposes, it is first necessary to decide whether such cause has already ceased to act or whether it is still existent and persistent in its influence. When the cause has been a fleeting one, no indications exist in regard to it; when the cause persists, however, the indication is for the removal of the cause; in such a case are we most successful as therapeutists. When we disinfect a wound to destroy a malarial organism by quinine, we carry out the indication for the removal of the cause. The distribution of bacteria is universal. Wherever man, animals, or even plants live, die, and decompose, bacteria must be present. Notwithstanding their extreme familiarity with the animal body, there are certain parts of it into which bacteria do not enter, or entering remain vital for a very short time only, for the body juices and tissues of normal animals are free from them, and their occurrence in these places may almost always be accepted as a sign of disease.

Should the pabulum supplied to bacteria contain an excess of either alkali or acid, the growth of the organisms is inhibited. Most true bacteria grow best in a neutral or feebly alkaline medium. Light will usually attenuate the virulence of pathogenic bacteria. The presence of certain substances, especially some of the mineral salts, in an otherwise perfectly suitable medium, will prevent the development of bacteria, and when added to grown cultures of bacteria will destroy them.

Bacteria which produce diseases are known as pathogenic; those which do not, as non-pathogenic. Between the two groups there is no sharp line of separation, for true pathogens may be cultivated under such adverse conditions that their virulence will be entirely lost; while at times bacteria ordinarily harmless may be made toxic by certain manipulations or by introducing them into animals in certain combinations.

A microbe having effected its entrance into an animal may grow with such rapidity as to completely block the blood or lymph channels, thus stopping the proper circulation, and disease and death must result. More common than this is a local establishment of the organisms, with a resulting inflammation, due partly to the pressure of the foreign organisms and partly to their toxic metabolic products. The term pneumonia is a vague one, really comprehending a variety of inflammatory conditions of the lungs quite dissimilar in character. This being true, no one should be surprised to find that a single organism cannot be described as specific for all.

The bacterium which can be demonstrated in at least 75 per cent. of the cases of lobar pneumonia, and which is now almost universally accepted as the cause of the disease, and about whose specificity very few doubts can be raised, is the pneumococcus of Fränkel and Weichselbaum.

In catarrhal pneumonia the majority of the cases are caused by the presence of the staphylococcus and streptococcus of suppuration. It frequently happens that pneumonia occurs in the course of or shortly after the convalescence from influenza. In these cases both the influenza bacillus and the pneumococcus are present. Again, the pneumococcus and the staphylococci operate simultaneously and produce a purulent pneumonia with abscesses as the conspicuous feature. It was not until 1892, after the great epidemic of influenza, that there was found simultaneously by Canon and Pfeiffer a bacterium which conformed at least in large part to the requirements of specificity. It cannot be positively proven that this bacillus is the cause of influenza, but from the fact that the bacillus can be found only in cases of influenza, that its presence corresponds with the course of the disease in that it is present as long as the purulent secretions last, and then disappears, and that Pfeiffer was able to demonstrate its presence in all cases of uncomplicated influenza, it follows that his conclusion that the bacillus is specific is certainly justifiable.

The experiments of Delvine and Kole showed that the toxicity of the cultures resides not in a soluble toxin but in the bodies of the bacilli. The outcome of the researches was the total failure to produce immunity, and the subject is as susceptible as before, if not more so.

Recent researches in actinomycosis have changed the view held by some bacteriologists in regard to the actinomycoses, and have caused them to regard the organism as a bacillus. If it be a bacillus the central zone of granular cocci-like elements is to be regarded as consisting of individuals in process of rapid division and spore formation; the mycelial zone as consisting of perfect individuals, and the peripheral zone as consisting of individuals partly degenerated through the activity of the cells and tissue juices. The blood is known to have germicidal properties, and these properties have been studied by Von Fordor, who reaches some interesting conclusions. He finds that increased alkalescence of the blood raises its germicidal power very much. The drugs which do this most effectively are the carbonates of sodium and of potassium. By the alkalinization of the blood of rabbits he made a large percentage of them refractory to anthrax.

The alkali very frequently used by a great many is potash or some of its salts. The iodide of potassium closely resembles iodine, but is less powerful and devoid of local irritant action. It is an antiseptic. It promotes absorption of morbid products. Professors Thernassen and Nocard trust implicitly to the iodide in actinomycosis. In chronic poisoning with lead or mercury it removes the metals from the tissues and from the body.

Potassium permanganate, although it has not the antiseptic power of corrosive sublimate, effectually destroys bacteria. Goldberg, in summarizing the results obtained by all authors on the irrigation treatment of gonorrhœa, shows 60 per cent. cured within ten days, 40 per cent. within two weeks, while 5 per cent. required a longer period and 5 per cent. was recorded as failures. The success was brought about by the use of a solution of permanganate of potassium (ordinarily one part to three thousand parts of water), all forms of internal medication and nauseous dosing being done away with.

The volatile or essential oils are mostly of vegetable origin, being found generally in the flowers, leaves, fruit or seeds of plants, but they occur in all parts of the coniferæ. Most are found ready formed, but some, as the hydrocyanated almond and mustard oils, are produced by a species of fermentation. The chemical constitution of the volatile oils differs from that of the fixed oils; most are pure hydrocarbons, with the molecular formula of oil of turpentine ($C_{10}H_{16}$), and are termed *terpines.* The volatile oils are *antiseptics* and *stimulants.* Oil of turpentine in medicinal doses is an antiseptic and stimulant, especially of mucous and skin surfaces. Like other volatile oils, it is an active antiseptic. In destroying bacteria spores Koch found it more effective than alcohol, ether, chloroform, or benzol, as no spores germinated after being wet with it for five days. It is eliminated by the lungs; it acts as a stimulant, an antiseptic, and an expectorant, by the skin promoting diaphoresis; by the kidneys inducing diuresis. The camphors, physiologically as well as chemically, are volatile oils. In the form of a fine powder or a solution they are quickly absorbed; they stimulate the brain, spinal cord, heart, and respiratory functions, and are excreted by the skin and bronchial membrane, and also in smaller amount by the kidneys. They have considerable antiseptic power, Koch having found that 1 : 2500 parts of water hindered the development of anthrax bacilli.

The benzol benzene, or aromatic series of carbon compounds, includes a number of antiseptics and antipyretics, viz., benzene, carbolic acid, creolin, salicylic acid, salol, antipyrin, antifibrin, phenacetin, etc. Creolin has been proved by bacteriological tests to be more prompt and effective than carbolic acid in the destruction of the microbes of anthrax, fowl cholera, glanders, etc. Kaufmann states that as a bactericide it is *ten* times as powerful as carbolic acid, and that a 10 per cent. solution does not irritate the skin, even when abraded, nor the mucous membrane. It is inhaled in ozæna, laryngitis, pharyngitis, strangles, bronchitis, gangrenous pneumonia, and in purpura. In the form of an injection it is useful in the retention of placenta, metritis, and purulent cystitis.

The petroleums or paraffins are hydrocarbons produced by the decomposition of vegetable matter. They are obtained from the destructive distillation of coal, from the bituminous shales, and from the oil wells found in various parts of the world. The petroleum, distilling over between 300° and 400° F., is chiefly nonane (C_9H_{20}) and dodecane (C_2H_{26}), and is used for lubricant purposes. At higher temperatures there come off hexadecane ($C_{16}H_{34}$) and other paraffins richer in carbon, constituting such soft solids as vaseline and the soft petroleums; while still higher temperatures produce the hard paraffins. The petroleums belong physiologically to the fatty or alcohol series of hydrocarbons. The petroleum spirit and other paraffin oils, by virtue of their diffuse solvent, stimulant, and antiseptic actions, are valuable both for external and internal use, the petroleum benzene or petroleum spirit being used for many of the purposes of oil of turpentine. Dr. M. M. Griffith asserts that the crude semisolid petroleum as it accumulates on the casings about oil wells is an invaluable remedy in chronic bronchitis and incipient phthisis. Huile de Cabian is a similar product which has long been famous in France as a remedy in lung diseases. Liquid petroleum is much used as a soothing local application in inflammation of the mucous membrane of the nose, throat, larynx, and even bronchial tubes.

(To be continued.)

A PRELIMINARY REPORT UPON FORAGE-POISONING OF HORSES (SO-CALLED CEREBRO-SPINAL MENINGITIS).

By Leonard Pearson, B.S., V.M.D.,
VETERINARY DEPARTMENT, UNIVERSITY OF PENNSYLVANIA.

The disease of horses commonly known as cerebro-spinal meningitis has long been supposed to result from the ingestion of food that has undergone fermentation or putrefaction or has become mouldy. The evidence in favor of this view has, however, never been of a direct but only of a circumstantial nature. While the disease has in many instances occurred on farms and in stables where horses were fed on mouldy or musty grain or ground feed, damaged hay or spoiled ensilage, and it has been assumed that such foods produced the disease, there has always been a lack of proof, first, that these foods were poisonous, and, second, that some other influence had not produced the disease. This absence of proof is due to no lack of efforts to fix the responsibility on suspected food-stuffs. Experiments have been made in large numbers in which suspected materials have been fed to horses in the attempt to produce the disease called cerebro-spinal meningitis, but all of these trials have resulted negatively. So far as the literature of this subject shows, cerebro-spinal meningitis, so-called, has never been produced artificially or under experimental conditions.

Friedberger and Fröhner state (*Specielle Pathologie und Therapie*, 1896, fourth edition), in connection with the discussion of mould-poisoning, that feeding experiments are usually without result; but, they add, that it is illogical to conclude from this, in the face of the clinical evidence, that moulds do not have pathogenetic properties. They do not cite any experiments to show that mouldy foods are dangerous; all of their evidence appears to be clinical.

Case. On October 29, 1900, I was asked by Dr. Francis Bridge to see with him a stable in which five horses had died of cerebro-spinal meningitis, so-called. The purpose of the consultation was to determine if possible the origin of the disease.

It was found that the horse stable consisted of a row of seven stalls across one end of the stone basement of a large barn. One long side of the basement was against an embankment and had no windows. The other long side was protected by an overhang. There were windows under the overhang and in each end of the barn. In front of the row of horse stalls and running at right angles to it were two rows of cows with stalls for about forty animals. There were two silos on the embankment side of the stable. The silage was thrown down into a dark room, formerly used as a root-cellar, opening into the stable at about the middle. The partition between the part of the stable occupied by the cows and that occupied by the horses consisted of the front of the horses' mangers. This did not extend above the level of the feed-boxes.

A silo had been opened about one week before the first cases developed. The silage was somewhat mouldy on top and had a musty odor. This condition extended down around the sides for several feet. No silage was known to have been fed to the horses, although some could get on their hay, which remained for a time, after it was thrown down from the loft, in the passageway in front of the cows. It was also possible that some of the milkers may have fed a little silage to the horses.

The hay fed to the horses was of good quality and in good condition. The concentrated feed was a mixture of oats, corn, and bran, and appeared to be in good condition. It was kept in a covered feed bin in the passageway between the horse mangers and the cow stalls.

All of the seven horses in the stable became weak, showed muscular tremors, difficulty in chewing and swallowing, and gradually progressive paresis, which terminated in death in five instances. The other two horses were removed to another barn and recovered. The duration of the disease was from two to four days. No autopsies were made.

Suspecting the silage, on account of experience in previous outbreaks and on account of the very mouldy condition of some of it, I obtained a sample and took it to the Veterinary Hospital of the

University of Pennsylvania for trial. For the trial a nine-year old-gelding was used that had been in the hospital for two months. This gelding had been quite stiff from osteoporosis, but had recovered largely from his lameness, was well nourished, vigorous, and in good general condition.

The feeding experiment started on October 30th and continued until November 2d. The horse ate altogether approximately one-half bushel of silage mixed with oats and bran. November 2d he ate and swallowed slowly and with some difficulty. His temperature was 100° F. There was no evidence of pain. November 3d there was well-marked paresis of the throat and of the muscles of mastication. The temperature was 100.5° F. There was twitching of the muscles of the flank and shoulder, desire to lie down much of the time, and some difficulty in arising. The inability to swallow continued, and the general muscular weakness progressed. In the evening the horse was unable to stand. The brain was clear. There was no pain. The horse died at 9 A.M., November 4th. Autopsy negative except for swelling and dark red, almost black color of mucous membrane of pharynx and glottis. The mucous membrane of the larynx was congested. The mucous membrane of the stomach was also much congested and showed some ecchymotic spots on soft mucosa. The stomach contents had a putrid odor. A bolus of partially chewed hay was lodged between the teeth and cheek, and this had a very putrid odor. There appeared to be an excess of cerebro-spinal fluid. The brain and cord and their meninges were normal.

Another horse, a gelding ten years old, with ringbones on both front pasterns, but otherwise healthy, was given on November 5th four gallons of water that had percolated through a bushel of silage. November 6th he was given three gallons of water from the same silage. November 8th he was given six quarts of silage. November 9th he was offered four quarts of silage, but did not eat more than half of it. Up to November 9th in the afternoon no abnormal condition was noted. It was then observed that he chewed and swallowed slowly. In the evening there was a little tremor of the muscles of the shoulder and partial paralysis of the throat, but he could drink very slowly. He laid down most of the time and was weak. Temperature 98.2° F. No pain. November 10th the horse was found dead in his stall, having died during the night. Upon autopsy lesions similar to those described above were found, but all were less well marked. Other investigations in this connection are now being made, and will be reported later.

As to the name that is usually applied to this disease—*i. e.*, cerebro-spinal meningitis—it is evident that the name is inappropriate, because there is no evidence of inflammation in the meninges of the brain or cord. Since this disease closely resembles the sausage-poisonings and meat-poisonings of man and the carnivora, and since the observations recorded above show that the as yet undiscovered infectious or toxic principle resides in the food, I wish to suggest the name "forage-poisoning" as one that would be descriptive and accurate.

VETERINARY PROGRESS IN MICHIGAN.[1]

By William Jopling, V.S.,
OWOSSO, MICH.

I HAVE had occasion to wonder many times in the past month what you gentlemen are expecting to hear from me under the title of my paper, "Veterinary Progress in Michigan."

What I should say, or should not say, has caused me no little anxiety. This is my first appearance as a contributor to the programme of the A. V. M. A., and in making my debut, I must acknowledge a feeling of temerity. If I had not felt it an imperative duty I would not be standing before you now. I have been too long intimately associated with our State Association not to be aware of the difficulty in making up a programme. Various reasons might be given explanatory of this condition of affairs, but it is nevertheless a fact that the majority of practitioners are loath to commit their thoughts and experiences to papers for the benefit and entertainment of their colleagues. This at least has been my experience with Michigan veterinarians. With this idea in mind I have taken upon myself the preparation of this paper, in the sense that it is a duty I owe the members of the A. V. M. A., who have honored our State of Michigan by their presence within our borders at this time. There are also a few matters explanatory of conditions existing among the veterinary profession of this State which I feel called upon to lay before you.

The title of my paper was not of my own selecting, but was suggested to me by request. Living in a quiet country town within whose precincts tuberculosis, glanders, rabies, swine-plague, anthrax, and kindred diseases are practically unknown, and which furnish popular themes for contributors to journals and such meetings as this, I felt were not within my province, as not having personal experience with them, I could produce nothing new and perhaps subject myself to the charge of plagiarism should I attempt it. In fact, the country in my vicinity appears to be in a very healthy condition, so much so that the much-mooted question of milk- and meat-inspection would not furnish me a theme. So leaving those questions to abler minds and those more favorably situated to write upon and discuss them, and asking your forbearance for this lengthy introduction, I will return to my text.

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[1] Read at the Thirty-seventh Annual Meeting of the American Veterinary Medical Association, Detroit, September, 1900.

The time is too limited; the conditions unfavorable, and their usefulness at this time too doubtful to furnish any statistics on veterinary matters in this State. Looking back for a period of twenty years, I am informed that then there were only two graduates in the State. Butchers, or men travelling with stallions, hostlers, etc., were applied to when assistance was needed. Since that time there has been a steady influx of college graduates till I think, I may say, there are over two hundred in the State at the present time. I am of the opinion that the law of the survival of the fittest will apply in this case, and that the charlatans and pretenders are gradually giving place to educated men, and now they are as few as formerly they were plentiful, and without the aid of legislative enactment.

Like in other States and Provinces, the veterinarians formed themselves into an association. This was some seventeen years ago. The organization has passed through the various periods of energetic activity at times, followed by periods of lethargy, a condition which I suppose all such societies experience. We have now seventy members enrolled, and are very harmonious and prosperous—speaking in a general way.

Being a strong advocate and lover of association work myself, the apparent absence of that feeling in many veterinarians is somewhat mysterious. Graduating as many of us did fifteen or twenty years ago, with the absence of chances of post-graduate work, such as the medical profession enjoy, how can we better keep abreast of the times than through and by the aid of these associations, where the interchange of thought and experiences must certainly benefit us individually and collectively? I feel somewhat ashamed of my professional brethren to find only four names on the roll of this Association. Why is this so? Reasons have been given, such as its being too expensive and too far to go to attend the sessions, etc. I became a member of this Association several years ago, and this one and the meeting in Chicago are the only ones I have had an opportunity to attend, for reasons over which I had no control, but I receive after each annual meeting the *Proceedings* thereof, and feel amply repaid.

When I ponder over these questions and consider the why and wherefore, I am compelled to think that were the matters referred to my friend Hoskins, of the JOURNAL, for explanation he would attribute it to want of higher veterinary education. It also surprises me when I learn of the comparatively few who are subscribers to our veterinary journals. This does not seem right.

Speaking of journals, I will presuppose that all members of this Association read the JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES. This granted, you will all be aware of the conspicuous place Michigan has taken in its pages during the past year. You will be led thereby to think our State is in a bad plight. Whether correct or not, I look upon this JOURNAL as, in a sense, the official organ of the A. V. M. A. I assume this from the very close relations its editor has sustained toward it this many years. This being the case, I beg your indulgence while we look into the matter a little.

According to the JOURNAL, Detroit is and has been the storm-centre of professional disturbances. That the cause of higher veterinary education has received its death-knell for a time in this State; that her schools are closing their doors or demoralized in a supreme effort to gain personal advantage and supremacy in active competition for students by an attractive short term; that our State Association has not been powerful enough to sustain her high-grade schools, or to mould their legislation in the interests of higher veterinary education now or progressively; that we have not been strong enough in State affairs to even obtain the appointment on this body of our deliberate selections; that the time is auspicious for a meeting in this State, for the profession is rent asunder with internal strife for leadership; that the chief veterinary official of the State is openly charged with incompetency in the daily papers throughout the Commonwealth; that the lack of support by the profession and the State has closed the doors of a school that endeavored to maintain the standard of the A. V. M. A., and sent from the State one of the ablest veterinarians she possessed; that a rival school, the outcome of the high course at Detroit, established by one who was unable to maintain the school at the latter point and which now maintains a curriculum that makes her graduates ineligible to membership in the A. V. M. A., and which is practically a one-man school; that the State Association is not a unit on any of the leading questions of the day for the welfare of the profession; that the time is propitious; that the hour is one of need for the presence and assistance of some strong power to aid in the solution of these trying conditions.

The JOURNAL closes with a hope that the Convention of the A. V. M. A. will prove a panacea for all these ills.

I find it humiliating to admit that there are grains of truth in some of those assertions; but I assure you, gentlemen, that many of them are erroneous and misleading and work an injustice to many of us.

It will not be necessary for us in Michigan to climb a tree to see where the JOURNAL gets its information, and I cannot help but think that if the editor would use more discretion in the use of the waste-basket there might be more harmony and the cause of veterinary education be enhanced in the State. It may be that it has received its death-knell; but may we not hope that all this disturbance, strife, and agitation by awakening renewed interest may be a means toward an end that will produce a new era and restore or bring us to a higher basis.

I dislike these disturbances very much, but hope good may come in the near future out of the evil of to-day.

I feel like denying that the State Association had anything to do with closing the Detroit school. Not being endowed or supported by the State, it simply went out of business the same as might have occurred in any other State where a college was not needed. I am also of the opinion that our ablest veterinarian did not leave the State on that account.

The institution at Grand Rapids was evidently started by one who, unable to gain admission or graduate from schools then in existence, built one for himself that he could control and graduate from.

The fact that he or none of the staff (unless there may be those who graduated from the Ontario College prior to 1893) are eligible to membership in this Association will help you to draw your own conclusions as to the chances of its promoting the cause of higher veterinary education.

This school is a blot on the civilization of our State, otherwise famed for its educational institutions. As I have said of the Detroit school, there was seemingly no need of this one, and if there was it had no excuse for not commencing with a three-year course, except from a financial point of view. I have had occasion to pay my respects to its dean through the JOURNAL. He has returned the compliment, and you will know that I am plain Mr. Jopling (liveryman), if you please. I acknowledge the corn, gentlemen. Graduates from the Ontario College do not aspire to the title "Doctor," but from the indiscriminate use made of the term the honor is doubtful in having it prefixed to your name.

But I can claim the honor of being a member of this Association, an honor which Professor Conkey is not likely ever to attain.

It is very distasteful to me to write upon such matters as this, but conditions seem to demand that I should, and I hope you will bear with me. This person divides the State into two elements —the American and the foreign element. The latter, or the graduates of the Ontario College, I venture to say constitute nine-tenths of the profession in the State. The former is made up of Professor Conkey, the (*Hon. W. W. Thorburn, V.S., D.V.S.*) Secretary of the State Veterinary Board, and evidently a traitor to our Association and others.

Like Americans usually do, they won the battle, but unlike Americans do, they did it treacherously, and by that means beat the somewhat unsophisticated foreign element at every turn of the hat in a political and legislative way. So that perhaps, as the JOURNAL says, "Better that we have no law at all."

As I have stated, there was no good reason why the Grand Rapids institution should not have started its career with a three-year course.

Neither was there sufficient reason why the Ontario College should not have extended its curriculum to three years—further than that, having been thoroughly established in the old rut for so many years, it was more difficult to adopt the new idea. I am a sympathizer with Dr. Hoskins in his efforts to secure higher veterinary education. The Ontario school is my alma mater, but I cannot help but feel like censuring the management of that institution for not extending its course to three years and meeting the requirements of the A. V. M. A., and I feel safe in saying that the majority of her graduates feel likewise.

It works an injustice to her alumni since 1893, and we have graduates in this State debarred from this Association who otherwise are entitled to membership. Of course, it may be said that it is a prospective student's privilege to choose his college, and, being aware of the conditions, abide thereby.

I am convinced that they make an error in the commencement of their career by so doing. Three years is a short enough time in which to receive a finished education such as is required the present day. I think you will concede that the graduates of the Ontario College, as a rule, are a good all-around practical class of men who meet the requirements as ordinarily met within a satisfactory manner.

I am satisfied in my own mind that one of the weakest points in connection with the Ontario College is the low standard of its matriculation examination.

Let a graduate of one of our high schools enter that institution to-day, and if he does his part can emerge at the end of the course with an education which will be a credit to himself and a benefit to the world.

But when a student enters who, so to speak, can with difficulty write his name, what are we to expect when you talk of higher veterinary education? This may appear to you like plain speech, but the conditions seem to demand plain talk.

With a few remarks upon legislation, I will close. I have never been enthusiastic on this question; I have often looked upon it as the bane of our Association, always consuming much time in discussion and depleting our treasury of funds without seemingly making any progress unless the constant agitation kept up year after year will do good by keeping the question before the public eye.

It seems to me a sad commentary on our civilization that every act of our lives, nearly, has to be regulated by statutes. To sum up, it seems to be a case of choosing between two evils—law or no law. Veterinarians in Michigan have chosen the former as the lesser evil, and I am authorized by the chairman of our Committee on Legislation to say to you that our veterinary bill was the strongest they could get. That it passed the House of Representatives with a provision that all schools and colleges to be recognized were only those that were recognized by the A. V. M. A., but that it was held up in the Senate by the Dean of the Grand Rapids School, which is not recognized by said Association, and we had to amend our bill in order to get it recommended by the Senate committee. However, we expect to have said bill amended at the next session of the Legislature—said amendment taking effect, say the 1st of January, 1901—providing that colleges to be recognized shall be up to the standard recognized by the A. V. M A.; also cutting out the privilege of an examination by the board, and that we propose to strengthen the bill in other ways of minor importance.

I am also informed that there is a bill to be introduced at the next session of the Legislature, by Dr. Baker, Secretary of the State Board of Health, which is of interest to local veterinarians. This bill is to regulate the sale of milk and the examination of dairies and dairy cows in the incorporated villages and cities of Michigan. It is the purpose of our Committee on Legislation to have a clause in said bill providing that all inspectors and examinations shall be made by registered veterinarians, and that they shall work with their local boards of health.

RABIES AND HYDROPHOBIA.[1]

BY D. E. SALMON, D.V.M.,
CHIEF OF BUREAU OF ANIMAL INDUSTRY.

(Concluded from page 608.)

The Diagnosis of Rabies. The question has been raised as to whether the tests by the inoculation of rabbits and guinea-pigs on the surface of the brain with emulsions of the medullas of suspected animals is a reliable indication of the existence of rabies. The editor of one of our veterinary journals says: "Is it not about time to give this subject a rest until more real scientific work is done in this field of research, and some more accurate work completed beyond those tests on rabbits and guinea-pigs, so lacking in conclusiveness to a majority of scientific minds?"

It certainly must be well known to the writer of that editorial that any doubts as to the reliability of the test by inoculating rabbits and guinea-pigs may be very easily dispelled by returning to the old method of inoculating large animals in the skin or muscular tissue with the saliva or with the brain or spinal cord of affected individuals. The experiments recorded by Zinke, Count Salm, Berndt, Hertwig, and Rey, which are quoted above, show with what certainty the saliva of rabid dogs produces rabies in dogs and sheep. These experiments have been repeated and confirmed by numerous investigators in recent years. It is not necessary to use emulsified medullas to obtain positive results; it is not necessary to inoculate intracranially; it is not necessary to use rabbits and guinea-pigs. This method has simply been adopted for ordinary use because of its convenience and because it produces disease in a maximum number of subjects after a minimum period of incubation. The reliability of the method has been abundantly proved, and the results correspond both with the post-mortem indications and with inoculation of larger animals in the skin and muscles. Those who habitually use small animals, inoculating subdurally with medulla emulsion as a test, and who have from time to time confirmed their results by inoculating larger animals by various processes, have confidence in this method. Would it not be well for those who lack experience to arrange to have some comparative trials of different methods made before they discredit modern science and modern laboratories by publicly expressed doubts? Moreover, the facts do not warrant the statement that the method of diagnosis in general use is lacking in conclusiveness to a majority of scientific minds.

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[1] Read at the Thirty-seventh Annual Meeting of the American Veterinary Medical Association, Detroit, September, 1900.

Permit me to relate briefly a typical case of rabies which occurred in the District of Columbia. A dog broke the chain with which he had been fastened and escaped from its owner's premises in Georgetown about 11 A.M., April 27, 1900. It ran for about two hours, covering six or eight miles. During this time it attacked fourteen persons and succeeded in biting two. It bit two horses and four dogs and attempted to bite several other animals, and was finally killed by a man whose brother it was viciously attacking. The post-mortem examination of this dog indicated rabies. Inoculated rabbits died of rabies. One of the horses, which was bitten in the nose, was taken to the experiment station of the Bureau of Animal Industry for safe-keeping. This horse developed rabies June 4th, after an incubation of thirty-eight days. The disease was very intense, the animal violently kicking, pawing, and tearing its flesh with its teeth. It died June 5th. Two sheep were inoculated with an emulsion of the medulla of this horse. With one the virus was injected at the base of the ear; with the other it was injected into the connective tissue behind the right shoulder. The former sheep remained well; the latter showed symptoms of rabies July 1st, after an incubation of twenty-six days. The first day of its illness this sheep was very vicious, attacking everything that came into its stall; if sticks were held toward it it would strike them with its head so violently as to knock them from the hands of a strong man; it also snapped and bit at sticks very much as would a vicious dog. The second day it was down on its side, paralyzed and unable to get up. It died July 2d.

If this disease, which developed in a dog, which was communicated by biting to a horse, and which was inoculated by virus taken from the medulla upon rabbits and a sheep, was not rabies, what was it? Will those who express doubts as to the existence of rabies kindly inform us where in the veterinary literature of the world a disease other than rabies has been described which includes the features shown by these animals—a disease starting with the dog, communicable by biting and by inoculation with the fresh medulla, having twenty-six to thirty-eight days' incubation, characterized by excitability, viciousness, and paralysis, and ending in death in the course of one or two days? The speaker can only refer these characters to one disease, and that disease is rabies. The nature of the disease was clearly indicated by the post-mortem examination of the dog and by the inoculation of rabbits. It was unquestionably the same disease as affected the other dogs tested in the laboratory and to which reference has already been made.

The assertion made by a few individuals that an identical disease may be produced in experimental animals by inoculating subdurally with brain-substance from healthy animals or even with inert substances is not supported by facts. That paralysis and death may be caused by simple injuries to the brain is evident; but the animals so injured do not show the long period of incubation of rabies; they do not present the symptoms of nervousness, restlessness, irritability, viciousness, fury, and paralysis in succession, and leading to death in a few days after the appearance of the first symptoms; they do not develop virulent saliva by which the disease may be communicated from animal to animal by means of subcutaneous or intramuscular inoculations. That is, rabies is a contagious disease, the most prominent characteristic of which is the virulence of the saliva; and paralysis produced by mechanical injuries to the brain can no more be accepted by pathologists as rabies than can ulcers in the nose produced by caustics be accepted as glanders, or than inflammation of the lungs produced by the injection of oil of turpentine can be accepted as contagious pleuropneumonia.

Rabies in Man. Admitting the existence of rabies in dogs and other animals, Is the disease communicable to man? Are we to accept the statement so frequently made that all of the alleged cases of rabies in man are nothing more than a mere nervous affection, developed as the result of worry and fear—the so-called lyssophobia? The men who make such a statement must either be very ignorant of comparative pathology or they must be very reckless in their assertions. Let some person who holds these views tell us of a single disease which is communicable between so many species and such unrelated animals as the horse, the ox, the sheep, the pig, the dog, the rabbit, and the guinea-pig, and which is not at the same time communicable to man. One of the commonest diseases affecting unrelated species of animals is tuberculosis. It is also the commonest disease of man. Another disease affecting all warm-blooded animals is anthrax. It is easily communicable to man. Glanders, a disease of the equine genus, may be communicated to dogs, cats, and other carnivora, and to guinea-pigs, and with difficulty to sheep, goats, and pigs; it is not communicable to cattle, yet it readily affects man. Actinomycosis affects cattle, swine, horses, and some other animals, and to this disease mankind is also susceptible. Cowpox affects horses and cattle, and is easily transmitted to man. Aphthous fever, though more particularly a disease of ruminants, affects also horses, dogs, cats, pigs, and poultry; it is frequently communicated to man. Tetanus affects widely separated kinds of animals and attacks mankind. Malignant œdema is a disease of various species of animals, and also of man. This covers the communicable diseases other than hydrophobia which affect widely separated species of animals. The rule in comparative pathology, therefore, is that a disease which may be communicated to unrelated species of animals may also be communicated to mankind.

It is easily shown by inoculation experiments, which may be repeated at any time, that rabies affects as wide a range of subjects in the animal kingdom as do any of these diseases; it is not confined to domesticated creatures, but develops in wild animals, birds, and monkeys. All analogy, therefore, would lead us to conclude that mankind should be susceptible to it. Add to this analogy the observation of thousands of instances of supposed transmission, covering a period of more than two thousand years, and the case becomes so strong that it requires much more than a mere assertion to disprove it.

We have, however, more evidence than this to prove that hydrophobia in man is not a mere mimetic disease. In the great debate on the subject of rabies which took place in the Paris Academy of Medicine in 1863, M. Tardieu,[1] referring to the official statistics of France, said: "We owe to them the ruin of a serious prejudice perpetuated by the obstinacy with which certain physicians have held to the non-existence of the rabies virus, offering themselves, with a courage worthy of a better employment, for an experiment in which they would be the first victims. Rabies, which for them is but a convulsive nervous affection originating most often from fear, the statistics show us developing at an age when the moral emotions are not yet born, when the imagination does not remain stricken with chimerical terrors—in early infancy. More than 30 cases of rabies have been noted in children under five years, some of them of two and three years." Since that time the communication of the disease to young children, some of them less than one year old, has frequently been recorded; but no one has explained how this could have occurred if the disease was simply due to the imagination.

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[1] Tardieu. Discussion sur la Rage. Bul. de l'Acad. de Méd., 1863, p. 1152.

The proof of rabies in mankind which appeals most strongly to the scientific man of to-day is the experimental demonstration. The comparative pathologist has always accepted such a demonstration as incontestable with other diseases. Is there any reason why it should not be equally convincing with rabies? When we have questioned the diagnosis of glanders we have inoculated a well horse from the suspected one, and if glanders developed in the inoculated animal we have concluded that the horse from which the inoculation was made must have had glanders. A disease cannot be communicated by inoculation if the individual from which the inoculation is made does not have it. Inoculation has, consequently, become the supreme test of anthrax, pleuro-pneumonia, foot-and-mouth disease, tuberculosis, Texas fever, and other contagious diseases. Now, what does the experimental method show about rabies in man?

Magendie[1] says: "We have (M. Dupuytren and I) injected in the radial vein of a young man affected with rabies about eight grains of gummy extract of opium, without any apparent result. I inoculated, with my confrère, Breschet, the saliva of this patient upon a dog, placing it under the skin of the head (*sous la peau du front*), and the animal became rabid at the end of about a month. Two dogs which were bitten by this one also became rabid after forty days. These last bit several other dogs, but without any bad result. In this series of experiments rabies was arrested, then, of itself at the third generation."

Earle, Hertwig, and Renault made similar inoculations from affected persons to rabbits, and obtained identical results. In recent years, since the subdural inoculation of rabbits has been a recognized method of diagnosis, there have been many inoculations of these animals with virus from the human subject which have caused the disease. There have been two cases in Washington in which the diagnosis of rabies was confirmed in this manner; and Dr. Law, as reported elsewhere, has inoculated both dogs and rabbits with human virus and produced the disease.

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[1] F. Magendie. Journal de Physiologie Expérimentale, 1821, vol. i., p. 42.

How can this evidence be set aside? How can such arguments be answered? They are not answered except by blatant assertions unsupported by facts. When the saliva of a man produces rabies in the dog upon which it is inoculated it is certain that the man had rabies. There is no other conclusion admissible. The virus of a contagious disease cannot be originated *de novo* as the result of anxiety and fear.

We must conclude, therefore, that rabies is communicable to man, and that the evidence of this is overwhelming and unimpeachable.

The Prevention of Rabies. Admitting that there is such a disease as rabies, admitting its frequency, admitting that it is communicable to man, what measures are indicated for its repression and eradication? The measures generally adopted have for their object the reduction of the canine population rather than any direct influence for the destruction of the virus or the prevention of contagion. Such measures consist in the levying of a tax upon dogs, with a requirement that the dogs wear a numbered tag to show that the tax has been paid. To prevent violations of this regulation it is usual to have a dog-catching force, whose duty it is to seize all dogs found in public places without tags, and if these are not redeemed within a specified time to destroy them.

The effect of such a regulation depends very much upon the amount of the tax and the energy and thoroughness with which the measure is enforced. Usually the requirements of this law or ordinance are evaded by a large number of dog-owners, and it is common to see on the streets dogs without tags. There is seldom an adequate force of dog-catchers, and the sympathies of many communities appear to be with those who violate the law rather than with those who endeavor to enforce it.

When there is an unusual prevalence of rabies among dogs, or when, unfortunately, some person contracts the disease, particularly if that person happens to be well known or prominent in the community, there may be a temporary exhibition of strict and energetic enforcement of the regulations; but as soon as the public alarm subsides the efforts are relaxed, the dog-catcher disappears, the dogs are seen upon the streets with or without tags, and all things go on as before the panic occurred. While the number of dogs is thus periodically reduced somewhat, it is seldom that this reduction is sufficient to have much effect upon the propagation of the disease. It is probable that the tendency at such times to keep dogs confined in order to prevent them from being seized has much more influence in arresting the propagation of rabies than has the mere reduction in numbers.

In nearly all cases these indirect measures have been proven insufficient and unsatisfactory. What other disease would we attempt to stamp out by simply killing off one-fourth or one-third of the animals of the species affected? And if this measure is not efficient with other contagious diseases, why should we expect it to be with rabies? It appears self-evident from a sanitary point of view that there should be some direct measures instituted to prevent the propagation of the contagion. Such a measure would be the quarantine and confinement of all dogs for a sufficient time to cover the ordinary incubation period of rabies. As the enforced and continuous confinement of dogs without open-air exercise for a prolonged period is detrimental to the animals, they may be allowed in public places under such conditions as will absolutely prevent them from biting—that is, the animals should wear an efficient muzzle, or they should be muzzled and led in leash. As rabies is only propagated in nature by biting, such a regulation if thoroughly enforced would at once stop the transmission of the disease and soon lead to its disappearance.

When this measure is inaugurated, however, it is at once opposed by a large class of citizens who hold it to be cruel and unnecessary. Some muzzles are unquestionably cruel, but a properly made muzzle is not cruel, nor does it greatly inconvenience the dog after he becomes accustomed to it. The authorities should, therefore, prescribe the kind of muzzle to be used, and should select one which covers the mouth with a wire cage, so as to prevent biting, but without interfering with the movements of the mouth and the ingestion of liquids.

There have been many who have denied the utility of the muzzle, the strongest argument being that dogs do not wear the muzzle at home, and when they develop rabies and escape it is always when they are unmuzzled. Admitting the force of this argument, it is, nevertheless, a fact that if all dogs were required to be muzzled when in public places the appearance of a dog without a muzzle would at once attract attention, leading persons to avoid it and causing its early seizure by the authorities. Children might be instructed that an unmuzzled dog was dangerous, and that they should keep at a distance from it, and especially that they should never touch or fondle such an animal.

The results which have been obtained by muzzling justify its enforcement wherever there is an outbreak of rabies. Most of us have heard of the experience of Berlin with this measure about the middle of the century. From 1845 to 1853, 278 rabid animals were received at the Berlin Veterinary School. This is an average of 35 a year. From March, 1852, to the same month in 1853, the number was 82, and from March, 1853, to the end of July there were 37 more. On July 20th it was ordered that the use of the muzzle should become general. From July to the close of the year but 6 cases were admitted. Only 4 cases were observed in the whole city during 1854, and but a single case in 1855. For the seven years following there was not a single case recorded.[1]

While some have attributed the disappearance of rabies from Berlin at the time mentioned to other causes, muzzling has been adopted in Germany as the principal reliance in repressing this disease. Consul-General Mason reports from Berlin to the State Department that "in Berlin, Frankfort, and, so far as I know or can ascertain, in all cities and large towns in Germany dogs are required to be muzzled whenever they are on the street or public place, and this regulation is enforced in cities even when the dog is led or held in leash by the owner or is harnessed for working purposes to a cart or other vehicle."[2]

In Great Britain the results from enforcing the muzzling order have been phenomenal, both in the opposition encountered by the authorities and in the successful eradication of the disease. The number of rabid dogs officially reported was: in 1887, 217; in 1888, 160; in 1889, 312. In the last-mentioned year muzzling was adopted, and the number of cases fell to 129 in 1890, 79 in 1891, and 38 in 1892; then, owing to persistent opposition, muzzling was stopped, and the effect of withdrawing this measure was at once seen in the increase of rabies. In 1893 there were 93 cases; in 1894, 248 cases, and in 1895, 672 cases. At this point, owing to public alarm, muzzling was again enforced, reducing the number of cases in 1896 to 438; in 1897 to 151; in 1898 to 17, and in 1899 to 9. As no case was discovered from November, 1899, to March, 1900, it was believed by the veterinary officer that the disease had been extinguished in Great Britain.

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[1] Renault, cited by Bouley, in Rapport sur la Rage. Bul. de l'Acad. de Med., Paris, 1863, p. 725. Fleming. Rabies and Hydrophobia, p. 365.

[2] Consular Reports, June 19, 1900.

No stronger evidence in favor of muzzling could be asked for or desired than this complete success in an extensive and thickly populated country like Great Britain.

PARTURIENT APOPLEXY: A DISCUSSION OF "MILK FEVER."[1]

By W. A. Thomas, D.V.M.,
LINCOLN, NEB.

This disease, or lesion, affecting our domestic animals occurs principally in the cow. It has baffled the skill of veterinarians ever since good cows were known, and not infrequently has the owner of one of these most useful animals had his highest hopes suddenly turned to disappointment and grief. He looked with pride on a noble cow, a fine calf, and thought of the possibilities of an abundance of rich milk. He goes out again too look at his prize, and what has happened? She is prostrated, and already half unconscious, pays no attention to his approach, nor to the calf that plays about the yard.

There is no time to lose. The doctor is called, and everything possible is done to save the animal, but she gradually sinks and dies. The owner wonders if that doctor "knew anything." That is just where we are standing to-day: wondering if the doctors know anything about parturient apoplexy.

Veterinary literature since the commencement of the century teems with descriptions and discussions relative to the disease, and the most eminent veterinary pathologists still appear to be far from unanimous as to its nature. This statement, made by Fleming a quarter of a century ago, still holds good.

In this vaunted day of science new theories are advanced and new treatments invented to relieve the concomitant conditions of this as yet disputed lesion.

Dr. Schmidt, of Denmark, inaugurated the idea that the trouble originated in the udder, and his treatment is to inject a solution of iodide of potassium into the udder through the teats. His paper giving theory, details, treatment, etc., was translated by Dr. Williams and published in the *American Veterinary Review*, covering a space of forty pages. The treatment was very soon taken up by veterinarians throughout the United States. Good practitioners have had varied success with the Schmidt treatment, saving, according to the figures they have given, from 25 to 75 per cent. Dr. Schwartzkopf, who is most enthusiastic for the Schmidt treatment, collected data which he presented in a paper before the American Veterinary Association in New York last September, himself losing two cases out of eight, and a third by complications.

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[1] Read before the Nebraska State Veterinary Association.

The intravenous treatment is comparatively a new one. So far as we can learn, the success with this mode is about equal to the Schmidt.

Instrument-makers have not been slow in aiding the would-be-up-to-date practitioner, as they are already making and advertising instruments for the new treatment.

If the Schmidt theory is correct some one should invent an antitoxin for the purpose of treating the liable subjects before parturition, and produce immunity from such attack.

At the request of this Association I collected data on this subject. The following list of questions were sent to the members of the profession in this State: 1. Time of taking ill after delivery? 2. What was the treatment? 3. Recovery or death? 4. In case of death, give post-mortem, if any. 5. What is your theory as to the pathology?

I received eleven replies. The replies to question No. 1 varied from time during delivery up to ten days after. The replies to the remaining questions were as follows:

1. Used Schmidt's treatment, also hypodermatic injection of strychnine; tapped the rumen; magnesia sulphate as cathartic. Two cases—one that received strychnine recovered. Theory on pathology, nervous intoxication.

2. Intravenous injection, hot-packs, catheterization, iod. pot.; with the intravenous treatment have saved 70 per cent.; none before. Pathology, am inclined to Schmidt's theory.

3. Iod. pot. per mouth, laxatives and stimulants; no success with Schmidt's mode. Recovery, 50 per cent. Pathology, inclined to believe that the trouble is in what we call the parturition centre in the lumbosacral region, of such nature that the nerves posterior to this cease to act.

4. Intravenous injection; iod. pot. per mouth; stimulants; hot fomentations to loins. Recovery, 75 per cent. Pathology, am undecided.

5. Intravenous injection, hot-packs to body and cold to the head; eserine hypodermatically, and later strychnine. Of late using the iod. pot. treatment (Schmidt's) in connection with above, and less of the hot and cold applications. Gives no percentage of success and no theory on pathology.

6. Laxative and stimulants, nux vomica and brandy; counter irritation to spine. Died after twenty-eight hours' treatment. Pathology, no theory expressed.

7. Life-root and pulsatilla every two hours. Recovery about 70 per cent. Pathology, no satisfactory theory.

8. Blood-root and pulsatilla every two hours, followed with magnesium sulphate and aromatic stimulants. Had seven cases one very wet week last June; most of them delivered in pasture and all died. Had ten other cases that made good recovery. Pathology, no theory expressed.

9. Sulphate magnesia in one gallon of water, ice on head, stimulating liniment to spine. After acute stage nerve tonics and stimulants. Five out of eight recovered. Schmidt's treatment in five cases, all making good recovery. Pathology: immediately after calving a superabundance of blood in the system, which has been nourishing the fœtus; is divided in these new channels for the production of milk, and the mammary glands at this time are generally stimulated to the utmost capacity, and therefore this blood, instead of being converted into milk, is retained in the system, causing degeneration of the nerves and centres.

10. All that has been recommended. Best success with Schmidt's treatment. Recovery, probably 60 per cent. Pathology: believe it is due to impression on the brain and spinal cord due to ptomaïn-poisoning or bacteria. Do not believe all the fault is in the udder.

11. Epsom salt, common salt, gamboge; three doses of pulsatilla and life-root, and no more. Recovery, 50 to 75 per cent. Pathology: think that there is a large amount of nutriment in the blood that should go to the calf, or milk that is thrown back upon the system, and the large amount of blood that does not find a natural outlet, and is thrown back on the system and influencing the sympathetic system, and I think is owing to the bad circulation of the brain.

In the eleven reports only two give post-mortem conditions. One states: "Brain soft, bloodless and flabby." This animal must have died after a few days' illness, and the lesions thus found were secondary.

Another states: "I have held many post-mortems and have always found thrombosis and embolism in the pelvic, sacral, and also in the mesenteric bloodvessels. Congestion of the various organs, the result, I think, of vasomotor troubles. In the posterior pelvic and sacral regions the various tissues seem bloodless, soft, and flabby, and in a very dry condition."

I wonder if the doctor really meant what he said—*i. e.*, that he found thrombosis and embolism in the pelvic, sacral, and mesenteric bloodvessels, or were they post-mortem clots? If he found thrombosis and embolism, then such conditions must have been preceded by disease of the heart or bloodvessels. An embolism is the obstruction of a bloodvessel by an embolus; an embolus is a clot formed in one place and transported by the blood to another locality; such emboli are ante-mortem conditions.

To recapitulate: Nine gave medicines per mouth; three the Schmidt treatment; one the intravenous treatment; two the intravenous and Schmidt; two ice or cold applications to head.

Of the number who have given medicines per mouth, not one has stated how they were administered, whether by drench or through a tube. If the cow is in a comatose condition, medicines cannot be safely administered by a drench, as they are liable to pass down the trachea, causing asphyxia or choking. The animal that is repeatedly drenched and recovers had but a slight lesion to overcome.

Franck gives a list of over 700 cases, with 60 per cent. recoveries. This is in Europe, where the percentage of recovery is very much reduced on account of the large number of animals slaughtered and used for food that in the United States would have had opportunity to recover.

We see articles upon this subject headed, "Parturient Paresis." This word paresis should not be used in connection with this lesion. We have only to consult lexicographers for the reason.

Universal Dictionary of the English Language: "Paresis patho: Insanity, with general paralysis. The loss of motor power is progressive. Those afflicted rarely live more than from one year to three years." *Webster:* "Paresis: Incomplete paralysis affecting motion but not sensation." *Duane:* "Paresis: Incomplete motor paralysis." *Dunglison:* "Paresis: Diminution of motor power; slight incomplete paralysis, affecting motion but not sensation, but by some regarded synonymous with paralysis."

Apoplexy is a sudden diminution or loss of consciousness, sensation, and voluntary motion, usually caused by pressure on the brain. If this pressure is due to congestion or from other causes when removed the animal recovers and is in no manner paralyzed. Then, what is parturient apoplexy? There are already too many answers to this question.

In a typical case, taken ill six hours after delivery, dying ten hours later, without a struggle, I find on post-mortem meningeal congestion of the brain and spinal cord hemorrhage, a clot extending full width of the fourth ventricle, with œdema or water. Can any one doubt that such conditions are sufficient cause for death?

The work of Friedberger and Fröhner, translated from the German and published in 1895, states that the pathological anatomy presents nothing or almost nothing characteristic.

These animals do not die without a cause. The symptoms are constant. They are that of coma, and coma is a symptom of lesions of the brain. Then we must look in the brain for the lesions. These are the primary lesions.

According to the percentages given, our losses are still too great. I would earnestly ask the profession to make post-mortem examinations on the animals we lose, that we may agree on the cause of death. Until then treatment of whatever mode is to a certain extent empirical.

OBSTACLES TO ENFORCING REGULATIONS REQUIRING THE TUBERCULIN TEST IN INTER-STATE CATTLE TRAFFIC.[1]

By Austin Peters, M.R.C.V.S.,
CHAIRMAN OF THE MASSACHUSETTS CATTLE COMMISSION.

(Concluded from page 597.)

The Massachusetts Cattle Commission has been impeded and imposed upon in every possible way that many of the drovers could devise. Most of the dealers undoubtedly thought when these regulations were first adopted, five years ago, that tuberculosis was a fad and a temporary matter; that it was of little importance, and that tuberculin did not amount to anything. A farmer in one of the northern New England States does not like to sell a cow subject to the test and have her left on his hands if she reacts; the drover does not like to buy a cow out and out and have her react, because he has to sell her at a loss near home, her value being diminished if she turns out to be an animal he is not allowed to bring into Massachusetts. The result has been that a number of the dealers have done their best to corrupt the veterinarians or alleged veterinarians making the tests, and induce them to make out certificates without using tuberculin at all, and in many instances have succeeded in doing so. When the Massachusetts Cattle Commission finds that a man is doing dishonest work it refuses to accept his tests, and the drover then has to find a new man, and, if possible, corrupt him. There have been a few exceptions to this rule, when the culprit has acknowledged that he has done wrong, and has promised to turn over a new leaf when the disgrace of his dishonesty has been pointed out to him, and he has been reinstated.

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[1] Read at the Thirty-seventh Annual Meeting of the American Veterinary Medical Association, Detroit, September, 1900.

In localities where an occasional carload of cows is shipped into Massachusetts I think that the testing has been in the main properly done; but where the cattle are shipped every week, as they are from certain points in Maine, New Hampshire, and Vermont, corrupt methods have developed. Two years ago last spring the Massachusetts Cattle Commission had a list printed of men whose tests it would accept, after dropping a number of names from the old list, and it is now time to prepare a new one; the chief reason for delay is the fact that just when it seems that the names of only reliable men are ready it is found that another good man has gone wrong.

Another reason for dishonest work, in some instances, is due to competition among the veterinarians, who cut prices in order to obtain a certain drover's patronage until they reduce the price to such a rate that a man cannot afford to test the cattle and use tuberculin, and so make out the papers without the formality of a test. This has been a very foolish cause for this kind of work, as there are so few men on the list now that they could all agree to a good price and obtain it.

Occasionally a tuberculous cow may be honestly tested and fail to react—that is, she may be tested by a man one week and refused a certificate, and then the owner may have another veterinarian test her the following week without informing him that she has reacted once, and thus obtain a certificate of health because she fails to react when tested the second time; or a drover may have a cow of which he is suspicious, and inject her with a heavy dose of tuberculin himself, and when she recovers have her tested by the veterinarian. Occasionally a badly diseased cow may fail to react, but these cases ought to be perceptible from the physical condition of the creature; but when a man is testing a large number, and has gotten into the habit of depending entirely on tuberculin, he may overlook such a case. In my experience, a cow's failing to react to a second test made soon after the first one is not as frequent as many persons believe; in the majority of cases an animal that has given a marked reaction once is very likely to react again.

Numerous specific instances of dishonest work might be given. Last autumn an Ontario graduate, supposed to be one of the leading veterinarians of New Hampshire, was called to Dracut, Mass., to test a cow just brought in from across the line, held in quarantine until a certificate of test was sent in. Soon after, suspecting that all was not right, I proceeded to Dracut, and went with the inspector of animals to see about releasing the cow. I asked the owner if she had been tested. He said: "Oh, yes; the man came and stuck the tubule right into her; took it out of his pocket and stuck it in." Asked how long he was there and how many times he called, he said: "He only seen him once, and he was only there a few minutes." All he had done was to take the cow's temperature, make a physical examination, and then give a certificate of tuberculin test. The cow failed to pass when tested properly later. This veterinarian called to see me and denied he ever did such a thing before, but acknowledged his transgression in the case I caught him on, and said he would be very careful in the future. The words were hardly cold from his mouth before he was called upon to test a lot of cows to be sold at auction in Southern New Hampshire, some of which might be brought into Massachusetts. A number were brought in with his certificate and held by the Commission and tested; several reacted, showing that they either were not tested properly or probably not at all. It is needless to say that his tests will not be accepted any longer by our board. This is only one example of a number that I might give.

Early in June a large Jersey breeder in Pennsylvania had Dr. Francis Bridge test a number of cattle he intended selling at auction, and sold them with his certificates. A neighbor was going to have an auction of Jersey cattle at about the same time, and he thought it would be a favorable opportunity to have Dr. Bridge test his. I believe there were quite a large number—over one hundred, if I am correctly informed—and some twenty odd failed to pass, and Dr. Bridge refused to give certificates. The owner had a local veterinarian test the cattle, who gave certificates on some, if not all, and they were sold at the auction with the other man's certificate. At the sale the statement was given out that Dr. Bridge did not test all the animals, as quite a little bunch was overlooked until after he had gone, and, therefore, they had been tested by another doctor. Several cattle from this sale were brought into Massachusetts, but all had been tested by Dr. Bridge. If any tested by the other man had been shipped into the State they would have been held and retested by the Cattle Commission, with, I believe, interesting results.

The Bureau of Animal Industry is in the best position to obtain honest tuberculin tests, as it holds the cattle in quarantine at the port of entry, and has its own agents to test them, and therefore knows the work is honestly done.

The greatest obstacle to the enforcement of laws or regulations requiring a tuberculin test in the inter-state cattle traffic is dishonesty.

First, there are the avarice and lack of honesty among some cattle dealers and drovers, which lead them to object to the test because it interferes with their profits.

Secondly, the dishonesty of certain veterinarians, who disgrace and dishonor a profession which should be a useful and honorable one by claiming to be members of it.

Possibly there is more excuse for the cattlemen, as many of them think tuberculin is a humbug; that the test is of no value, and that these regulations are a passing fashion—not come to stay. I do not wish it to be understood that I regard all our cattle dealers and drovers dishonest or dishonorable, as there are a number of men among them of the strictest integrity and reliability, but it is greatly to be deplored that many of them are not.

The veterinarians ought to know better than to do dishonest work, and should be glad to coöperate with the authorities in any State in diminishing a scourge to the farmer, even though too many farmers are so ignorant and short-sighted as to fail to appreciate what is being done for them. As to the danger to the public health, I think that is a matter that has been overestimated. The attempt to terrorize the community with the dangers of the use of dairy products, on account of tuberculosis, by certain veterinarians whom the people have suspected of wanting salaries has done much to cause a reaction against the work and lead to a lack of confidence in the profession, such as is so well exemplified in the very wise legislation already alluded to in the State of Connecticut. Much of the trouble seems to be due to a lack of honesty among certain dishonorable members of the profession. What other remedy there is except refusing to accept their tests I do not know. They ought certainly to be expelled from any veterinary associations to which they belong, although most of the offenders belong to a class that do not join associations. Dealers and drovers or breeders who sell cattle with fake tests ought to be prosecuted for obtaining money under false pretences, and a breeder who will do such a thing ought to be expelled from any breeders' association, and his cattle ought to be refused registry in the herd-book.

A lack of honesty seems to be a national failing. Parents should bring up their boys to realize that it is a sin and a disgrace to steal, and that "a lie is an abomination to the Lord." Our veterinary schools should lay greater stress on professional integrity than at present; and if some means could be devised for disciplining the rascals, even to revoking their diplomas, if that is possible, it would be a benefit. "Honesty is the best policy;" but my experience with men has been that a man who is not honest as a matter of principle is not very likely to be so as a matter of policy.

Other obstacles to the enforcement of regulations requiring the tuberculin test may be carelessness on the part of railroad companies in seeing that a shipper to a point outside a quarantine station has a permit. It occasionally happens that a freight agent may accept a shipment of cattle from a man who has not secured a permit without notifying the authorities in the State to which the cattle are shipped. This can be remedied by reporting the local freight agent to the general freight agent of the road whenever such an instance is heard of, and in time the work will be so perfected as to have no such infringement of the rules, as they are broken more from not understanding them than from any direct intention to disregard the law.

Another obstacle that will always exist on a small scale is the trading back and forth of cattle by farmers in adjoining towns located in different States; but the number of animals exchanged in this way is limited. The necessary rules or laws may be enforced here to a certain extent, but there will always be a number of instances where they will be quietly disregarded.

I have necessarily confined myself chiefly to the condition of affairs in New England, and more especially to Massachusetts, as this is where my personal experience lies; but what I have said will probably apply to a certain extent to other sections, and it may be that the trials we have been called upon to endure may result in making it easier for others later.

SELECTIONS.

THE SLAUGHTER CURE FOR TUBERCULOSIS.

A PERUSAL of several articles in some of the veterinary journals on tuberculosis and the tuberculin test would lead one to believe that the thirst for blood said to be latent in every human being has broken forth in the veterinary profession Nero-like. Some of these gentlemen would consign to the pyre all reactors to the tuberculin test. Pure bred or scrub, fat or lean, good milker or poor milker, they all must go. It is difficult to understand the reasoning which leads to such conclusions, unless it is scientific teaching run mad. A more sordid explanation presents itself, but even on this basis the dullest-minded veterinarian should see that he is not subserving his own personal interests by the advocacy of such extreme measures. Of course, the institution of such a sweeping policy of slaughter would provide temporary jobs for the vets, but it would kindle such resentment in the minds of plundered stockmen as would cost the veterinary profession dearly in the end. These extremists are sowing the wind and they will reap the whirlwind. They have already alienated hundreds of stockmen who will lose animals by disease rather than employ the men who have advocated the slaughter of their cattle. On the most selfish basis these unrestrained vets are throwing boomerangs. They should have a care. The worm is already turning. A shotgun quarantine is not an impossible thing. They have run amuck with tuberculin squirt-gun and pole-axe among the herds of farmers until patience has ceased to be a virtue, and the wave of rising retribution will engulf them with dire results. Farmers will no longer submit to such highway robbery under guise of law. This much on the sordid side.

But all this destruction of valuable property by over-zealous veterinarians has been done in the name of science, and yet the leading scientists, the men who investigate and reason, not the crowd that follows blindly with never a thought of its own, do not recommend the slaughter course. Bang and Nocard, who have devoted the most careful study to the question, are more moderate and sensible in their teachings, and their views, along with the experience of Russell at the Wisconsin station (which has induced him to change his position into which he was led by blind leaders of the blind), show that slaughter based on the tuberculin test is both irrational and wasteful. It is nothing but a doctrine of extremists, and extremists in medicine have oftener been wrong than right.

Stockmen have suffered their share at the hands of such unbalanced scientists. The demand for the indiscriminate slaughter of all lumpy-jawed cattle has not faded from memory, and hardly had this rank heresy been uprooted when the tuberculin craze intrudes. Tuberculin is in many cases a useful diagnostic agent in proper hands and at the proper time, but there its usefulness ends. It does not indicate the extent of disease in any particular case; that must be decided to a great extent by the clinical symptoms backed up subsequently by careful *post-mortems.* Ample evidence of the fallibility of the test has been brought to light on the Continent, in Britain and in this country, and no one longer ventures to dispute the fact that the worst cases of tuberculosis, those which may really prove dangerous under favoring conditions, are ofttimes wholly undetected by the tuberculin test.

When tuberculosis is scheduled as a contagious disease in the human family, along with smallpox, diphtheria, and the like, then perhaps we may listen with some patience to the slaughter proposition. But that time will never come. The war on the stockmen's interests has proceeded on the absolutely false basis that tuberculosis is a contagious disease. If it were such a disease as smallpox or scarlet fever the whole human race would have been wiped off the face of the earth centuries ago. Not a man among the "scientific" matadors who are brandishing the pole-axe has dared deny that proposition. The disease *may* be transmitted if the conditions are favorable for the tubercular bacilli to find suitable ground for growth. *But the healthy human system affords no habitat for the germs of tuberculosis.* This is the fundamental fact of this disease; it is the impregnable truth in the presence of which the falsehood of "contagion" rattles unspoken in the throat of the special pleader. But grant them their false premise; concede tuberculosis to be a contagious disease as the term is generally understood: what then? Kill all reacting cattle—and *then apply the pole-axe to all consumptive people!* In this way only can the disease be eradicated. And even such impossible methods would prove absolutely futile, as the air is full of the germs of tuberculosis. Dirt scraped from a car-window has revealed them by the thousand under the microscope. Churches and theatres and other places of public gatherings hold the bacilli in carpets and cracks and corners. The dust of our streets may be laden with them. They may be encountered everywhere. But they are harmless to the healthy system and only find lodgement where conditions of the mucous surfaces are peculiarly adapted to their growth by predisposition or disease. Not even by slaughter of cattle and consumptives could the disease be eradicated if it were a contagious disease as such diseases are understood.

The absolute folly of the slaughter crusade, the essential wickedness of it, thus stands boldly forth. The only wonder is that stockmen have suffered it thus far.—From the *Breeders' Gazette,* Chicago, October 24, 1900.

[See editorial comment on the above article in this issue.]

DEPARTMENT OF SURGERY.

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Hoof Diseases.

(Continued from page 630.)

While holding the hoof in both hands in the manner described a full view of the sole, frog, and bars is obtained. Is the horn dry and brittle or moist and soft? Is the frog well developed and smooth, especially the middle lacuna, as it should be? Let us suppose the sole is removed. First the sole: Is its concavity normal? Is it a drop sole, or is it a contracted sole characterized by excessive concavity? Is the white line in full union with the sole, or are separations present? Next the bars. Is their course correct? Are both alike? Are bar-cracks present? Along the bearing surface of the shoe and in the angle formed by the bars and the wall it is well to remove a thin layer of the horn, simply to see its color at these parts. Here bruises, corns, suppurations are recognized by the reddish, bluish, brownish, specked or black color of the horn, and a peculiar yellowish and red diffused state of the horn suggests a hemorrhagic or serous pododermatitis, as we shall see later. The frog is examined for foreign bodies, as nails, etc., atrophy, thrush, etc.

Palpation of the hoof with the pincers or hammer requires practice in order to avoid making diagnostic errors. Even a perfectly healthy hoof when tested injudiciously with hammer or pincers will exhibit pain, for instance, when pared recently, and the pincers applied with too much pressure. The question naturally arises, How much pressure may be applied to get safe results? Compress the handles of the pincers with a short movement, applying just enough force to bend the horn of the part pressed upon a little. This rule is for the beginner. As he proceeds he will soon learn to size up a hoof and the amount of pressure it may stand to give reliable results on palpation. Whenever the hammer or pincers cause pain by their application the animal shows it by a more or less vigorous reflex movement in the triceps extensor of the foreleg, and in the hind leg, in the muscle of the croup and thigh mainly. Therefore, do not watch the spot you press upon, but closely observe the muscles alluded to for any short contractions. Another rule worth remembering in testing a hoof with the pincers consists, in starting, in compressing first that portion of the sole, or whatever part one is examining, which is known to be in a healthy state and therefore not in pain. This gives you a chance to acquaint yourself with the normal elasticity of the hoof, and by gradually working the various portions of the hoof with the pincers in that way a painful area is more readily appreciated when struck. Any painful spot after thus being located by palpation may then be further examined with the hoof-knife. On the whole, the writer prefers a percussion hammer to the pincers. In fact, certain diseased states, unless recognized by inspection—for instance, loose wall—can only be diagnosed with the hammer. Nevertheless, the pincers when properly applied give very satisfactory results, and are more adapted for the use of the beginner than the hammer. Test the hoof by applying one jaw upon the outer, the other one upon the inner quarter; next start one jaw in the angle formed by the bar and wall, going around the sole until you arrive at a spot opposite where you started from, taking a new bite every inch or so, paying especial attention to the nail-holes. Finally, place one jaw up just in front of the anterior commissure of the middle lacuna of the frog, while the other jaw is rested about in the middle of the wall of a quarter. Now move the outer jaw to the middle of the wall of the toe, leaving the other jaw rest upon the frog. Having tested this part, move the outer jaw once more until it arrives opposite its first position—that is, when the outer wall and middle of the frog were compressed first. Lastly, the inner wall and middle of the frog are tested. This last test is first employed in testing the region of the navicular joints.

The heels and plantar cushion are best examined by both inspection and palpation. Inflammatory states of these parts are characterized by a change in form, thus one heel may project more and stand higher than the other one, or both may be out of place under these circumstances. The coronary portion bulges out more or less over the horny wall, often being of a fatty, glistening appearance. The plantar cushion when involved, beside other well-marked symptoms, induces a filling of the hollow of the heels. Palpation of the heels in such states, also the plantar cushions, is accompanied by more or less pain. To palpate the hoof it is not necessary to remove the shoe. Only when pain results from palpation with the pincers or hammer may removal of the shoe become necessary.

As far as the hoof proper is concerned there remains but one more point of special interest, and that is ring-formation, either physiological or pathological, as the case may be. The physiological rings, as a rule, involve the whole hoof, run parallel with the coronet, and only involve the periople and the uppermost layers of the horny capsule, and simply represent physiological increase in the blood-supply or the horn-producing parts of the coronary cushion. They follow a change of food. For instance, a horse out to pasture for six months, suddenly put on an oats diet, will in due time show these rings. Pregnancy, etc., also are concerned in the production of them. Pathological ring-formation usually involves only a part of the hoof; while it runs parallel with the coronet it depends on a dislocation of the papillary body of the coronary cushion, either by retraction upon or compression of those parts.

In conclusion, examination of the coronet, bones, and articulation of the phalanges must be made.

In the coronary region one looks for swelling, which may be simple or purulent inflammations of the skin and subcutis, fistulous tracts of quittors, or suppurating corns (a glaring misnomer). Fulness of the coronet may also depend on a stasis, as inflammation of the podophyllous tissue, which swelling may deceive the beginner, causing him to think of a tendonitis; but the excessive pulsation of the arteries carrying blood to the hoof, with other well-marked symptoms, should dispel any doubts in that direction. Dislocation of the os pedis as seen in serious cases of laminitis permits the coronary region to descend, giving it a sunk-in appearance.

While examining the coronary region an examination of the lateral cartilages should be made. The point of greatest interest is their elasticity, depending on their form, which is as variable as the hoofs they equip. The amount of elasticity lies within wide limits, and practice only can teach when a decreased elasticity is encountered. To test the cartilage the hoof is held in both hands, as described when inspecting the sole. The thumb is placed upon the superior border, and down and inward pressure exerted. An honest test—that is, a reliable test—to perceive the elasticity of the deeper parts the writer is not acquainted with, and the early and deep ossification of the lateral cartilages may be diagnosed by exclusion only. It has been suggested to use the hoof pincers over the ossifying member, and that expression of pain on palpation was suggestive of ossification of the lateral cartilage. The mere fact that such a test only "suggests" the diseased state renders it too uncertain a means to be employed to settle doubtful cases.

The diagnosis of fracture of the os pedis or navicular, or the differential diagnosis, is at times exceedingly difficult, and, as a rule, an exhaustive examination of all parts of the leg must be made and the case diagnosed by exclusion. The most reliable symptom of fracture of the navicular bone so far known to the writer was pointed out to him some years ago by Dr. M. H. McKillip, consisting of a peculiar set-back or slight descent of the anterior face of the second interphalangeal articulation.

The individual examination of the phalangeal articulations and their ligaments is with some of them exceedingly difficult, as reliable information can only be obtained when each joint is examined by itself without the examination exerting its influence at the same time upon the other joints, as it is the case, for instance, in passive rotation of the second interphalangeal articulation without first fixing the first interphalangeal joint. In other words, by simply getting hold of the hoof and rotating it with a view to produce pain would, to be charitable, yield a mixed diagnosis. To properly test for a painful state of the second interphalangeal articulation by positive movements, the first interphalangeal articulation must be fixed. The foot is elevated, the assistant firmly embraces the fetlock, while the os corona and os pedis are forcibly extended. In this position the upper joint is practically fixed, and flexion, extension, and rotation of the second interphalangeal joint may now be practised and reliable results obtained. To test the first interphalangeal articulation the second one must be fixed. The foot is elevated, the fetlock held firmly, and strong flexion of the second interphalangeal articulation practised. In this way the navicular bone is pushed against the os corona so closely as to practically lock the joint. The metacarpo-phalangeal articulation is readily examined both by inspection and palpation. Here passive extension and flexion may also be employed to advantage, while rotation is practically *nil* on account of the anatomical arrangement of the articulation.

Finally, it may be remembered that two main forms of pus are met with. One is thin, gray on the black hoof, or light brown on the non-pigmented hoof; the other is of creamy color and thick. The former is the product of a superficial inflammation; the latter the result of a deep and more serious inflammatory state.

While speaking of the difficulty in examining the hoof in case of fracture of the navicular bone, os pedis, ossification of the lateral cartilage, the writer pointed out the difficulties experienced and the doubtful results obtained by the ordinary means of examination. The employment of the X-ray permits one positively to settle such doubtful points. The employment of the X-ray in the diagnosis of certain pathological states is of necessity but little employed in veterinary surgery, nevertheless it is practical, its application requires but little time (about two minutes or even less), and after the eye has once been trained to appreciate correctly what it perceives, little difficulty is experienced in employing it to advantage. The reason that it cannot be employed largely is simply that it takes too much of the almighty dollar to establish an X-ray apparatus. In the following pathological states it may be employed with advantage: Ossification of the lateral cartilage, fractures and fissures of any of the phalangeal bones, nail pricks, ringbones, while it is to be regretted that chronic navicular arthritis, as a rule, is not detectable by the Röntgen ray.

The *Revista de medecina y chirurgia Practicas* for July 21st, citing *Progrès Médicale*, says that Drs. Roger and Garnier recently reported to the Paris Society of Biology the following facts on the transmission of tuberculosis by human milk: They found the bacilli of tuberculosis in the milk of a woman who died from miliary tuberculosis seventeen days after childbirth without the existence of any tuberculous lesions in the mammary glands. This milk was taken with aseptic precautions and inoculated into two small Indian rabbits. The first, which had received subcutaneously four cubic centimetres, succumbed after thirty-three days with generalized typical tuberculous lesions; the second, in which only two cubic centimetres were injected, did not die, and when it was killed, ten months later, only simple non-tuberculous cicatrices were found. The infant died after six months with tubercles in the mesenteric glands, the liver, spleen, and kidneys. From these facts it appears that the intestine formed the point of entrance. This case, the author thinks, shows that the milk from a tuberculous woman may contain the bacilli of Koch and transmit tuberculosis.—*New York Medical Journal*, September 1, 1900.

THERAPEUTICAL AND PHARMACEUTICAL NOTES.

UNDER THE DIRECTION OF W. J. MARTIN, M.D.C.,
KANKAKEE, ILL.

ANTIFEBRINE IN INFECTIOUS PNEUMONIA. MM. Guillemain and Cadix have used this drug extensively in the treatment of the above-named disease. They gave ten drachms daily, divided into three to five doses, and came to the following conclusions:

1. The drug has a powerful antithermic action, as proved by the following cases:

CASE I.—Morning temperature, third day, 40.2° C. Antifebrine administered three times. Evening temperature, 39.3° C.

Morning temperature, fourth day, 39.8°. Antifebrine administered three times. Evening temperature, 38.6°.

Morning temperature, fifth day, 39.2°. Antifebrine not administered. Evening temperature, 39.5°.

CASE II.—Morning temperature, fourth day, 39.9°. Antifebrine administered three times. Evening temperature, 38.2°.

Morning temperature, fifth day, 39.1°. Antifebrine not administered. Evening temperature, 39°, instead of 38.2°, as it was the evening before at the same hour.

2. That the action of the drug is irregular and fleeting:

CASE I.—Morning temperature, second day, 40.3°. Antifebrine administered at eleven, one, and three o'clock. Temperature, 4 P.M., 39.5°; at 6 P.M., 40.6°—a rise of 1.1° in two hours.

Morning temperature, third day, 40.8°. Antifebrine administered three times. Evening temperature, 40.8°.

CASE II.—Morning temperature, third day, 39.9°. Antifebrine administered at seven, eight, nine, ten, and eleven o'clock. Temperature gradually declined 1.9° at mid-day, but at 6 P.M. again 40.4°.

From these cases it would appear that ten grammes is too little, and that, as it is rapidly eliminated, the drug should be administered frequently throughout the day.—*Veterinary Journal*, October, 1900.

SOLUTIONS OF FORMALDEHYDE. Dr. G. E. Crawford, in an article on "Formalin as an Antiseptic in General Surgery," gives the following formulæ: The 4 per cent. solution is made thus: Formalin, 5 oz.; sterilized water, 7½ pints. From this the following working solutions may be prepared: One-eighth per cent. solution of formalin or 1 in 2000 formaldehyde: 4 per cent. solution, ½ oz.; water, 15½ oz. One-quarter per cent. solution or 1 in 1000 formaldehyde: 4 per cent. solution, 1 oz.; water, 15 oz. Three-eighths per cent. solution, or 1 in 666 formaldehyde: 4 per cent. solution, 1½ oz.; water, 14½ oz. One-half per cent. solution, or 1 in 500 formaldehyde: 4 per cent. solution, 2 oz.; water, 14 oz. Five-eighths per cent. solution, or 1 in 400 formaldehyde: 4 per cent. solution, 2 oz.; water, 13½ oz. One per cent. solution, or 1 in 250 formaldehyde: 4 per cent. solution, 4 oz.; water, 12 oz.—*Can. Pharm. Journ.*

DISTINCT THERAPEUTIC PROPERTIES OF ALOES VARIETIES. A veterinary expert, in a contribution to the *Pharmaceutical Journal* on the uses of aloes, claims that while all the advances in modern therapy and pharmacy have been embraced by the scientific veterinarian, and aloin and the concentrated medicaments employed, the old bolus of Barbadoes aloes holds its own against all innovations. "It is a survival of the fittest; nothing else answers its purpose in the treatment of horses, although other varieties of aloes serve well enough in certain affections of cattle." As an aperient the Barbadoes variety acts with more certainty than any other, and without the accompaniment of abdominal pain, too often excited by Socotrine, Cape, or other aloes, an objection not even removed by the addition of warm aromatics, like ginger. Facts like these, even though they come from veterinary sources, should be borne in mind, now that there is a tendency to obliterate all lines of demarcation between the different varieties of aloes.—*Western Druggist.*

DIPHTHERIA ANTITOXIC GLOBULINS. Park (*Pediatrics*) says that investigations have shown that the antitoxic substances in the blood are closely combined with the globulins of the blood. Experiments made at the Research Laboratory of the New York Board of Health showed that injections of diphtheria toxin into horses increased the amount of globulin when the amount of antitoxin was increased. It was, therefore, decided to use this antitoxic globulin in cases of diphtheria. It was precipitated from the serum and an aqueous solution made, which was tried on forty-eight cases. Its injection was attended by rather more pain than the antitoxic serum. Its general effects were similar to those produced by the serum, the same rashes, etc., being produced. Therapeutic results were identical. On the whole, it was rather disappointing.—*Med. Stand.*

PREVENTION OF SURGICAL SHOCK. At the recent Medical Congress in Paris, Dr. F. B. Turck, of Chicago, in the section of general surgery, read a paper on "Prevention of Shock and Infection During Operation," which embodied reports of a series of experiments which show that the germs inoculated in animals when in shock proved pathogenic, but when not in shock they were nonpathogenic. Experiments proved that hot applications, made on animals when in shock, resuscitated, and no infection followed. The author is convinced that the application of hot-water bags in the cavity, added to the usual aseptic precautions, will prevent shock and lower mortality after operations.—*Ibid.*

FLUID EXTRACTS MADE WITH ACETIC ACID. There is a bare possibility that these extracts will be admitted into the next edition of the *United States Pharmacopœia.*

ANTHRAX TREATED WITH HYPODERMATIC INJECTIONS OF CARBOLIC ACID. Dr. W. E. Fisher, of Philadelphia, reports in the August number of the *Therapeutic Gazette* the successful treatment of a case of anthrax in man by the hypodermatic injection of carbolic acid. The patient, a male, was an employé of a large woollen mill in this city, the point of infection being a puncture of the forearm by a tack while at work. From a small pustule at the seat of injury cultures and cover-slip preparations were made, in which the presence of bacillus anthracis was demonstrated. The treatment consisted of injections of carbolic acid into and around the seat of the diseased area, as much as one drachm of the pure acid being injected in one day. This was continued until the patient had been given six drachms of the pure acid, and one drachm of a 10 per cent. solution of the acid also.

The results were most satisfactory, the patient making a complete recovery. At no time during the treatment was the carbolic acid detected in the urine, nor was there any noticeable pain or inflammation experienced by the patient from the acid.

ACTION OF THE THYROID GLAND. Steinler, Gautner, Kappler, and others have found by experiments performed upon animals from which the thyroid gland had been removed a decided retardation of the union of broken bones. This condition was readily overcome upon the administration to the animals of thyroid extract. These experiments demonstrate beyond a doubt that the thyroid gland exerts a decided physiological effect upon the nutrition of bone. This fact has been taken advantage of in the treatment of false joint in man by the internal administration of the thyroid extract.

THE SWISS PHARMACOPŒIA. At its recent session the permanent pharmacopœial commission of Switzerland decided to incorporate into the next edition of the *Pharmacopœia* seventy-four new articles, and to eliminate others to the extent of thirty-four. The text will not be in the Latin language. The use of fluid extracts for preparing tinctures, decoctions, and infusions will be declared not permissible.

ABORTIVE TREATMENT OF BOILS. Dr. Jorissene, a French physician, aborts furuncles by applying an ointment consisting of one part of red mercuric oxide and ten parts of lanolin, rubbing it in for three or four minutes once a day or oftener in larger ones. Acne and whitlow are answerable to the same treatment.

ACETANILID IN EPILEPSY. Inglis (*Physician and Surgeon*) has obtained excellent results in the treatment of epilepsy by the use of the coal-tar products. He now uses acetanilid for this purpose, in doses of about five grains three times a day. This dose may in many cases be decreased if, after using it for some time, the patient remains free from the fits. He has found that the acetanilid treatment gives the best results in cases where the bromides have failed or have exhausted their beneficial effects. He, therefore, has come to the conclusion that where epilepsy is seen early it is best to put the patient first of all upon the bromide treatment. After this, if the drug loses its effect, the acetanilid may be given with reasonable hope of benefit. In canine and feline patients the above form of treatment will no doubt be found of value, more especially in those cases where the epilepsy is not due to the presence of intestinal parasites or structural alteration of the cranial walls, but arises from a functional neuroses of the central nervous system.—W. J. M.

DEPARTMENT OF CANINE AND FELINE MEDICINE AND SURGERY.

BY CECIL FRENCH, D.V.S.,
WASHINGTON, D. C.

COMPOUND FRACTURE OF THE TIBIA AND FIBULA IN A BLACK-AND-TAN TERRIER; OPERATION; RECOVERY. The subject was a small, dainty specimen of the breed, weighing not more than four or five pounds. When received by me it was walking on three legs, and I was informed that it had sustained injury through falling from a height on to a concrete pavement two days previously.

Examination showed that there existed a complete fracture of the lower extremities of the tibia and fibula of the left leg just above their epiphyses, with over-riding about half an inch in extent. The fractured extremity of the proximal portion of the tibia was displaced inwardly, forming a marked prominence. It had slightly perforated the integument, presumably at the moment of fracture, but was not then visible. The distal portion, which lay on the outer side, was everted and rotated inward.

I endeavored to reduce this fracture by simple methods, but without success, as muscular contraction effectually prevented me from correcting the over-riding. Another attempt with the aid of ether was likewise barren of result.

Nothing now remained but extreme measures. I may state at this juncture that a local veterinarian had previously attempted reduction with the same non-success, and had given the case up, advising that the animal be chloroformed to death.

The operation I am about to describe is exceedingly simple, provided patience, delicacy in technique, and asepticism are observed. It is one that can and should be undertaken in all cases of fracture where, through tendency to over-riding, the broken extremities cannot be maintained in apposition.

The instruments necessary are: scalpel, dissecting forceps, two pairs of hæmostatic forceps, bone-forceps, bone-drill, silver-wire suture, and curved needle. The bone-drill in a case like this can be manufactured out of a lady's ordinary hat-pin by filing and hammering its point to the shape of a spear-blade.

The animal was laid with its back on the table and secured with hopples and quickly placed under the influence of chloroform by means of an inhaler of my own pattern, which I shall describe in the near future. A free incision was made over the prominence —*i. e.*, the inferior extremity of the proximal portion on the inner aspect of the leg, and the edges of the wound were retracted on either side by seizing them with the hæmostatic forceps and allowing the latter to hang over. A little teasing of the deep fascia with the blunt extremity of the scalpel soon exposed the broken surfaces of both portions of the bones. At this stage another attempt at reduction was made, but proved equally futile, and it was necessary to shorten the proximal portion by clipping off a quarter of an inch of bone from the shaft with the bone-forceps. The extremities could then be easily approximated. The fibula, being of slight importance, did not seem to need and did not receive any attention.

In order to maintain the approximated extremities in apposition, suturing with silver wire was next employed. A hole was drilled in each portion, entering at the lateral surface, and emerging on the fractured surface, their exits being made to correspond to one another in position. The wire was introduced, passed through both holes, the parts approximated, the wire twisted, and the ends cut off short and hammered on to the periosteum. A Halstead subcuticular or buried suture of silver wire served to close the wound. A liberal application of xeroform was used and the parts encased in a posterior angular splint well padded with absorbent cotton and held in position with strips of linen made to stick with mucilage. The splint was constructed of one strip of cardboard bent in the centre to form an angle and stitched to retain its shape.

Three days later the wound was examined, and was found to have entirely closed (healing per primam). No stitches needed to be removed. The splint and external dressings were retained for four weeks, and then permanently removed, and at the present day the little dog is in full use of his leg as if nothing had ever happened to it.

CARPIPES UNILATERALIS CONGENITALIS. In the September number of this volume I described an instance of carpipes (printed carpus by mistake), or club-foot, in the foreleg. The specimen was obtained from the local pound, and during a recent conversation with one of the employés of that institution, I was informed that another dog, similarly affected, had been gathered in and sent to its doom some time previously, as its owner had refused to redeem it by payment of the usual tax. Being interested, I made further inquiries of the owner and the person in whose possession the animal had come into existence, and was informed that "it had been born with its left foot (the same as in the other case) turned up, and had always walked on its knee, and could get about just as well as any other dog."

An Unusual Exhibition of the Maternal Instinct. Immediately following the above description was another headed "The Conditions Reversed," in which I mentioned instances of adoption and nursing between the dog and cat kind, and *vice versa.*

The case I am now about to relate must be considered somewhat remarkable, inasmuch as the animal manifesting the desire for maternal cares was deprived of its ovaries some two years ago. I say deprived of its ovaries guardedly, because it has regularly estruated since the first operation, and on reopening the abdominal cavity recently I found a cyst present at the site of one of the ovaries, which was evidence that a portion of ovarial tissue had been left behind, and consequently, through the function of ovulation still continuing, though only to a modified extent, the animal was still subjective to the maternal instinct. The animal in question is a fox-terrier bitch owned by Mrs. W. A. Little, of Fredericksburg, Virginia.

Ordinarily, it shows extreme aversion to cats. A kitten was introduced into the family, and to the astonishment of every one the terrier was observed to coax it into the basket used as sleeping-quarters. This occurred about two months after the estrual period, which is the time the mammary glands of the non-pregnant bitches often become active, as if in mistaken anticipation of a call to support a family. The kitten quickly learned to suck and thrived well on its diet. The bitch licked it, nursed it tenderly, growled with resentment at the approach of strangers, and when parted later from its adopted offspring grieved with no uncertain grief.

The Dentition of a Mexican Hairless Dog. It is well known that the dentition of the breed of dogs above referred to is usually imperfect, a circumstance not to be wondered at when we remember the common epiblastic origin of the teeth and dermis. Darwin[1] long ago referred to this peculiarity. Waugh[2] examined individual members of this breed, and found the tricuspid arrangement of the incisors wanting, absence of the canines, and slower and later development of the molars than in other breeds. Half-breeds had canines in the upper or lower jaw, but not in both jaws.

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[1] The Origin of Species, vol. i. pp. 14, 179.

[2] Journal of Comparative Medicine and Veterinary Archives, 1890, p. 235.

I have recently had the opportunity to examine the jaws of a five-year-old bitch of pure breed, and found the arrangement of the teeth present as follows: In the upper jaw there were two well-developed incisors, but without any sign of cusps, and one rudimentary one. Two rudimentary canines occupied a normal position. Of the molar group, there was entire absence of true molars, the only representatives being one premolar situated in the position usually occupied by the second premolar, and the fourth premolar, known as the superior sectorial. The anterior one inclined to the rudimentary type, while the sectorial, instead of being composed of two main lobes and a third smaller one, possessed only two lobes, and these were ill-defined. This arrangement was common to both sides.

In the lower jaw there was absolutely no sign of an incisor or a canine. One premolar was present on either side, corresponding in position to the first one of a normal mouth, but still rudimentary in point of development. On either side was a fairly well-developed tooth corresponding in shape to the first true molar or lower sectorial, but occupying a position proper to the last premolar.

These two posterior molars of both jaws not having any teeth to oppose them had caused the formation of indentations in the opposite jaws.

It will thus be seen that not a single tooth possessed by this animal had attained its proper development. I was careful to inquire of the owner and look myself for evidence of premature loss of any of the teeth, but such did not appear to have been the case.

Bulletin No. 25 of the Bureau of Animal Industry contains a report by the Committee on Public Health of the Medical Society of the District of Columbia as to "rabies." It adds to the vast literature already extant upon this subject. If the public could only be encouraged to read literature prepared in bulletins of this kind on diseases such as tuberculosis, the fruits of the work done in controlling that fearful destroyer of human lives would be a greater work than can be hoped for in dealing with so comparatively rare a disease as hydrophobia.

EDITORIALS.

WHEN WILL REASON AND JUDGMENT PREVAIL?

It is with reluctance that we offer to our readers another editorial on tuberculosis. This subject has many times been presented and discussed in the pages of this JOURNAL. It would, at first sight, seem that there remains nothing worth saying that has not already been said clearly and well. But still false views, erroneous opinions, and, indeed, sometimes, wilful and malignant misstatements on this subject are propounded and sent forth with the approval of some one holding the confidence or the attention of a portion of the public. Perhaps all of this is natural and should be expected, for it is impossible to educate the entire public to correct views on a question that has been misunderstood for generations. How difficult it has been, for example, to teach the public, and even some doctors, that tuberculosis is not usually acquired by inheritance.

Tuberculosis will be suppressed when the facts in regard to the disease are understood by the people. The way is clear. How do we know that it is clear? Because many breeders and dairymen have followed it, and have arrived with healthy herds at the goal they sought, leaving tuberculosis behind. It is necessary, however, that the FACTS disseminated in regard to tuberculosis shall in truth be the facts and not an aggregation of unfair and incomplete extracts from and prejudiced comments upon biased articles on this subject, compiled and distorted by a man who, though an expert on some questions associated with animal husbandry, is not a pathologist or bacteriologist, and who does not have special knowledge of the diseases of animals, but who is the possessor of a tubercular and run-down herd that he is anxious to sell. We are led to these reflections by a review of a short series of articles on tuberculosis, published some time ago by a weekly journal for the American stock-farmer, and by an editorial in the *Breeders' Gazette* (reprinted elsewhere in this issue) entitled "The Slaughter Cure for Tuberculosis." It is evident that the articles first referred to and the editorial were written by different men. The former were hazy with pseudo-science, studded with false premises and unsound deductions, and reflected the handiwork of the penny-a-liner or the poseur. The editorial is different. It most stupidly sets up a man of straw and then assails him viciously. But its author pursues tactics that are nasty and foul, even when fighting men of straw; he hits below the belt; he resorts to mayhem; he becomes hysterical, claws, scratches, and shrieks. His product reeks with gall and venom. He appears to feel that he is one chosen to prepare the whirlwind or to direct the shotgun quarantine that is to destroy all who "run amuck with tuberculin squirt-gun and pole-axe among the herds of farmers." Such a production at first excites mirth, and then sorrow—sorrow that such a generally reputable paper should accept and print on its first page, and back by its prestige, this accumulation of misinformation, insults, half truths, absolute errors, and balderdash. "Such a criticism is all very well, but can you refute the statements in the editorial?" some may say. Perhaps it is worth while, then, to analyze the article, not for the benefit of our well-informed readers, but for the good of the Sanderses, the Goodwins, etc., whom one occasionally meets.

1. Live-stock sanitary boards and veterinarians are not practising or recommending, and very few veterinarians ever did advise, the general destruction of all animals reacting to the tuberculin test. In many States a system similar to that originated by Bang is officially recommended, and owners of reacting cattle are encouraged to adopt it, as in Pennsylvania. In some States (Massachusetts, New Jersey, and others) only physically suspicious cattle are tested with tuberculin.

2. General herd tests are not compulsory in any State in America. In nearly all States provision is made for the relief of farmers who wish to eradicate tuberculosis from their herds, but established herds generally are not required to be tested.

Cattle of some classes are required to undergo and pass the tuberculin test when moving from one State to another. This is practically the only instance in which the test is compulsory.

In Illinois the board arranged "to conduct tests only where the owners of cattle made voluntary application for the same, and agreed to abide by the rules and regulations prescribed by the board for conducting such tests, save where, as a result of tests, the prevalence of disease was positively demonstrated to exist in other herds. *With one exception, all the tests made during the past year were conducted on the application of the owners.*" (Report of the Illinois Live-stock Commissioners, 1899, p. 23.)

There is absolutely no instance of general compulsory test at this time, nor is any one recommending such general tests. It was found in Massachusetts several years ago that this plan was not a desirable one. The unsatisfactory work done in Massachusetts was planned and conducted by a board made up in part of farmers. Hence, the slur about "unrestrained vets running amuck," etc., is entirely gratuitous and is empty clatter.

3. Bang and Nocard do not, it is true, recommend the general slaughter of reacting cattle. But in all fairness their recommendations and practices should be stated, since they are editorially commended as men who have most carefully studied the question and are moderate and sensible in their teachings. Both of these safe leaders advise in the strongest terms, and practice, the testing of infected herds with tuberculin and the separation of all reacting cattle. Those showing clinical signs of tuberculosis are killed, the other reacting animals are kept, practically in quarantine, as a separate herd. The milk from such cows is heated before it is permitted to be used.

Can farmers here practice this plan in ridding their herds of tuberculosis? If they cannot keep cattle profitably under these conditions it is useless to adopt or to advocate the Bang system.

4. As no one has ever claimed tuberculin to be infallible, the wonderful discovery announced by the *Gazette* that it is not infallible cannot count for much. One might as well say that "extensive experiments made on the Continent, in Britain, and in this country have shown that the speed of railroad trains is limited; they do not run 200 miles an hour, so why use them?" Use them because they afford the best means of transportation available. And tuberculin is used because it affords the best means of diagnosticating tuberculosis that is available. But, as the *Gazette* says, it must be placed in proper hands and used at the proper time. Surely, no one has ever said that it should be placed in improper hands and used at improper times! It is true that some advanced cases do not react to tuberculin. This is well known to all veterinarians, and guarded against, so that the advanced cases do not pass and are not permitted to do harm.

5. Tuberculosis is already scheduled as a contagious disease in the human family, and must be reported to the health officer along with smallpox, diphtheria, and the like in New York City and many other places in this country. Such reports are also required in a very large number of foreign cities. This regulation is strongly recommended by physicians, and is spreading. Moreover, the sanitaria for consumptives provide means for isolating many dangerous cases.

6. Tuberculosis is essentially, primarily, and absolutely a contagious disease, and is so recognized by all physicians. It spreads by direct or indirect contact.

7. If tuberculosis were such a disease as smallpox or scarlet fever it would do precisely what smallpox and scarlet fever do. These diseases have not exterminated the human race, nor have the plague, cholera, yellow fever, and diphtheria combined. Surely some of these diseases are contagious.

8. "Tuberculosis may be transmitted if the conditions are favorable." This is all that can be said of any contagious disease or any fatal influence, and is all that any one has ever claimed. A bullet will kill if the conditions are favorable—that is, if there is enough powder in the cartridge, if the gun is rightly aimed and fired at the right time, if the object is within range and has a vital part exposed, etc. In every outbreak of every disease, however virulent, there is a large proportion of escapes.

9. There is not a warm-blooded animal of any species that may not be killed by tuberculosis. No animal has complete immunity to this disease. It is all a question of degree. Some animals contract the disease readily because they furnish favorable conditions for the growth of the germ; other animals require prolonged exposure and large numbers of bacilli before they succumb.

To say that "the healthy system affords no habitat for the germs of tuberculosis" is to say that as soon as the germs of tuberculosis enter and remain, as they often do, the system becomes unhealthy. To use another simile, we may say that the healthy man never has pneumonia, for a man having contracted pneumonia is unquestionably ill. The essence of this point is that it is absolutely impossible to say that any person or bovine animal is proof against tuberculosis. Any of them may contract it if exposed. This is abundantly proven by the experience of every practising physician or veterinarian.

10. The air is not full of the germs of tuberculosis. It was formerly believed that the germs of tuberculosis were ubiquitous. This belief was but an empty view or opinion. It was never based on observation. No one has ever found tubercle bacilli widely distributed. For years scientists have been hunting for them, and have used the most accurate methods and perfect instruments that can be devised. What is the result? Are tubercle bacilli found in the air of our streets, in the carpets, cracks, and corners of the churches and theatres and on car windows? Not at all. Tubercle bacilli are found only about consumptives, human or

bovine, places occupied by them and their products. That is all.

Is it asking too much of a paper to be accurate? If a paper screams its opinion at you with frantic gestures, is it too much to ask that these opinions be modern and not those discredited years ago? And if a paper persists in vomiting putrid editorials that are neither true nor up-to-date, should it not at least be polite enough to hide them among the advertising pages? Of course, we must admit, it is hard to be polite when it finds that a straw man set up with much labor and then kicked with force is filled with lead.

And now, finally, is it not fair to assume that the *Gazette* does not wish the ravages of tuberculosis to be checked, if it does not propose some plan for the accomplishment of this end and furnish some actual proof that the plan will work and has worked successfully? But from the above it must be clear that opinions from the *Gazette* on tuberculosis should hereafter be accompanied by the evidence in full. Perhaps it would be well to have the evidence sworn to.

ATLANTIC CITY IN 1901.

THE JOURNAL is glad to announce, just as it goes to press with this number, that Atlantic City, N. J., will be the place of meeting in 1901. Sufficient of the votes of the Executive Committee have been polled to decide in that city's favor, and there will be a general rejoicing all along the eastern coast at this decision. There will be a generous welcome in that Mecca by the sea to every veterinarian who attends, and there will be a wide-open hospitality on the part of the profession, the foremost citizens of that city, and the cheapest railroad rates of any year in Association history.

AN ADDED STRENGTH.

THE JOURNAL congratulates its contemporary, the *American Veterinary Review*, on the recent acquisition to its business management of Dr. Robert M. Ellis, of New York City. Dr. Ellis is among the most active veterinarians of the profession, with excellent qualifications to fill this important position, and we are sure the *Review* will have an added strength in every direction through the association of Dr. Ellis. We wish Dr. Ellis success and pleasure in his new field of work.

BUREAU OF ANIMAL INDUSTRY.—NOTES.

EMPLOYÉS OF THE UNITED STATES BUREAU OF ANIMAL INDUSTRY AT BUFFALO, N. Y.

Dr. Charles H. Zink, inspector in charge; Dr. Bernhard P. Wende, inspector of cattle yards; Dr. John P. O'Leary, inspector of sheep yards; Dr. W. N. D. Bird, inspector of hog yards; Dr. Harry M. Ball, inspector of export horses; Dr. Clarence O. Durfee, inspector of abattoir 190; Dr. Louis A. Robinson, inspector of abattoir 42; Dr. Herman R. Ryder, inspector of abattoir 42; Dr. Alfred F. Martins, microscopist 42.

Beside the inspectors and assistant inspectors on the force, there are employed in stock-yard and abattoir work two clerks, four stock examiners, seven taggers, and nine ladies as assistant microscopists. The work at Buffalo is varied in its extent. Beside the yard inspection and abattoir inspection in 190 and 42, the tagging of export horses and mules, the dipping of diseased and exposed sheep for sale, tagging of export cattle, the microscopical inspection of export pork, there is the inspection of Canadian live-stock at the various ports of entry in Buffalo, N. Y., Niagara Falls, N. Y., Suspension Bridge, N. Y., Lewiston, N. Y., and Charlotte, N. Y.

One of our co-laborers in the inspection force, Dr. Alfred F. Martins, who has charge of the microscopical inspection, has invented a very ingenious substage, which is attached to the microscope and is manipulated with a small crank, the turning of which causes the slide on which the specimen to be examined is placed to work up or down. After reaching a certain point a cog is passed, and the slide is slipped to one side, and proceeds back before the centre of the field of vision of the microscope. It continues backward and forward until past the field of vision. It then becomes unlocked, and another slide is placed in position, and the slide is pushed backward, locking itself in the operation, and can only be unlocked until the slide passes over the field of the microscope. This attachment is especially valuable in the examination of samples of pork, to detect the existence of trichinæ, as every portion of the slide passes the centre of the field of vision, and no portion escapes a careful scrutiny. The department has furnished all the microscopes at this point with this attachment, under the control of Dr. Martins, and he reports that in their use a much more satisfactory result is obtained.

Dr. Louis P. Green, a former employé on the Buffalo force, now in charge of bureau work at Detroit, Mich., was married on September 19, 1900, to Miss Emma Becker, an assistant microscopist on the Buffalo force.

Dr. Louis A. Robinson spent his vacation at Goderich, Canada. He was stationed at Detroit during the vacation period of Dr. Green.

Dr. Harry M. Ball sojourned in Ohio during his vacation.

Dr. B. F. Wende visited Cincinnati, Ohio, and Lexington, Ky. He said the vacation was not half long enough.

Dr. Herman H. Ryder took the right step on October 16th by taking a better-half.

BOOK REVIEW.

HOBDAY'S CANINE AND FELINE SURGERY.

THIS work, as the preface states, has been placed before the student and practitioner with a wish that it may prove of benefit to them, and to cover a field of special surgery (canine and feline) not as yet attempted.

The first portion of the work is devoted to the securing and preparation of the animal for operation, and the author shows a perfect familiarity with the subject, going minutely into the different parts of the manual with the force and detail of a master of the subject on which he writes.

The descriptions are lucid, and cannot but be of great benefit to the student and also to the practitioner. We cannot but feel, however, that while the different methods are all very well for a hospital with its corps of assistants, its various apparatus, etc., it is a question whether the average practitioner and young graduate can only sigh for the possession of such luxuries, and confine himself to the simpler methods of restraint.

The continued use also of chloroform in anæsthesia, when there is such a drug as ether, is a matter of constant wonder to practitioners on "this side of the water." We have tried time and again to use the former drug, and did it with fear and trembling, and while the percentage of sudden collapse has not been large, still it has been sufficient to wean us from it and to take a drug like ether, and there have not only some latitude but lots of it; where we can be our own assistant and give our own ether or instruct a layman to assist, and feel that we can go on with our operation with safety; where one can depend on himself, for it is not always convenient, or is there enough pecuniary return to share the remuneration with a trained assistant?

The operations, as the author states in his preface, are described in a concise manner, and we are inclined to agree with the author that the words have been followed out to the letter; but we think he has been too concise in his descriptions, for there are a number of instances where it would puzzle the student or practitioner to perform the operation unless he had previously seen it performed, or was guided by some one who was proficient in it.

The text is extremely simple, and the grammar, which to our mind is good, would commend it to certain reviewers who fail to look on a work for its intrinsic value, but go into holy horror over a grammatical error.

The photographic half-tones are very good, and the author deserves great credit for originality. The balance of the illustrations (special apparatus, surgical apparatus) would look much better in a surgical instrument maker's catalogue than in a scientific work. There has been recently, and, in fact, always to our mind, too much placing of cuts of various instruments and surgical apparatus in text-books where the maker's name was boldly displayed, giving the work the air of an advertising dodge.

The work, however, is one that should commend itself to the profession and to the student, and, to copy a thread-worn expression, "it fills a long-felt want," containing as it does a description of all the operations performed on the dog and cat in a clear, simple way, and with it a number of original ideas, especially as to the apparatus, which are very valuable, and for which the author deserves praise from every member of his profession, especially those interested in the small animals. A. G.

The well-known firm of Messrs. E. R. Squibb & Son are now making a feature of their work the preparation of private formulæ, so that nicety of product, perfection of combination, and attractive appearance that an ordinary pharmacy will not permit of will be at the command of the veterinary profession.

Veterinary sanitary work in the City of Manila, P. I., has already received much attention through our army officials stationed there, and food-inspection, especially of pork-products, becomes a very needful field of work, owing to the frequency of tapeworm among the natives.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

THE semi-annual meeting was held at Erie, September 18, 1900. It was opened by President Harger at 10.30 A.M. At roll-call the following members were noted as present: Drs. J. Buckham, Beaver Falls; M. J. Chrisman, Sugar Grove; H. Emery, Pittsburg; S. J. J. Harger, Philadelphia; F. F. Hoffman, Brookville; W. Horace Hoskins, Philadelphia; J. B. Irons, Erie; George B. Jobson, Franklin; C. J. Marshall, Philadelphia; C. C. McLean, Meadville; W. A. Meredith, Corry; Leonard Pearson, Philadelphia; E. C. Porter, New Castle; E. M. Ranck, Philadelphia; A. W. Radley, Bethlehem; A. W. Weir, Greenville.

Among the visitors were: Drs. T. M. Brackett, Erie; J. Bryce, Erie; Mr. Churchill, Erie; Drs. A. E. Cunningham, Cleveland, Ohio; Harry E. Dunn, Erie; Mr. J. R. Ferguson; Drs. John Gobin, North Collins, N. Y.; C. Z. Laberge, Beaver Falls; R. M. Phelan, Sharon; Hunter Smith, Rowesville; Wm. M. Wilson, Hartstown.

Reading of minutes of the annual meeting was dispensed with on account of the shortness of time and length of the minutes.

Next in order of business was the President's address, which was well presented by Dr. Harger.

Address of the President.

This morning we open the semi-annual meeting of the Pennsylvania State Veterinary Medical Association. While I speak this name allow me to suggest that it would be more in accordance with good grammar and with the true scope of the work of our profession if the by-laws were so amended as to omit the word "medical."

Not having had an opportunity before to extend my obligations to you for electing me to this position, I shall now take occasion to do so and endeavor to promote the work of this Association with the same zeal that my predecessors have displayed.

The last annual meeting in Philadelphia, one of the most, if not the most, successful in our history, is still fresh in our minds. The semi-annual meeting is by many, though erroneously, considered of second importance, and consequently the attendance is usually rather small. I regret that at this meeting, as well as at the semi-annual gatherings in the past, so many members who could ably afford to take this journey make themselves conspicuous by their absence. Many of the members from the western part of the State go to the annual meeting in Philadelphia, and the members from the latter section of the State can be expected at least once a year to leave their own bailiwick and pay their respects to their colleagues as well as to the organization as a body at some distant point. If there is not sufficient apparent inducement for them to participate they should, by their presence and collaboration, create such inducement.

Far from being a pleasure visit to a distant part of the State, the semi-annual as well as the annual meetings have for their prime object the enhancing of the work and the principles which we represent. Numerous invitations have been sent to veterinarians not members. Almost every veterinarian in this section of the State has received an invitation from us, thinking that on account of the nearness of the place of meeting they would take advantage of this opportunity and give the more active members a chance to arouse some enthusiasm in Association work and convince them of the power and influence which accrue from the collaboration of many individuals combined into one harmonious whole.

I find, after consulting the veterinary registry of this State as well as from many personal acquaintances that I have made, that the veterinarians in the counties of this section are quite numerous; that professionally they are well advanced; they take an interest in their profession; they are active participants in our Association; they strive to drown worthless, empirical ideas; they work harmoniously with the powers that be in the control of animal diseases and the exploitation of the live-stock interests.

We have accomplished much, but we must not be egotistical. This we can see by comparing our position of the present with that of twenty-five years ago. Our profession has sprouted and grown rapidly; but, comparatively speaking, it has still not yet reached its full manhood; in its skeleton we still see traces of the primitive centres of ossification, evidence of incomplete development. In order to effect a complete coalescence of these into one solid frame around which the nerves and sinews of our work are grouped, enabling these to produce their maximum results, it requires every effort of which the phenomena of assimilation and growth are capable. The identity of many diseases remains to be determined—many of those which are now grouped under the same nomenclature are to be differentiated; veterinary science must play an important factor in hygiene—in the preservation and amelioration of the public health; laws must be enacted and amended for controlling the spread and eradication of animal diseases within this State and in interstate traffic; the slaughter of animals, and meat and milk-inspection require the supervision of the expert veterinarian; the transmission, through the consumption of animal products, of diseases from the lower animals to man must be guarded against, and the unnecessary sacrifice of human lives through these agencies must be prevented. The time will come when boards of health must associate with themselves a veterinarian whose province it is to trace sporadic deaths as well as epidemics to the cow-stable, the creamery, or the slaughter-house. We have a State Veterinary Examining Board that requires your assistance to remedy its weak points; also a Live-stock Sanitary Board, well known to you, which requires your coöperation. On legislative matters you will be enlightened during these proceedings. The veterinarian should be a guiding factor in the breeding of animals and their selection, encouraging the elimination of those unfit to have offspring; also in the management of animals in competition for prizes, as in horseshows and fairs where such exist. The veterinarian can profitably associate himself with medical societies and point out to the physician facts and conditions in comparative pathology of which the average medical practitioner may not take recognition. In these and in many other varied ways the veterinarian may make himself a potent factor in the interests of his community, his profession, and in advancing his own position.

The safety of our future has, by some alarmists, been questioned. Shall we die or shall we live? Our anticipations of the future need not be so gloomy; we are not so near the threshold of annihilation. From what you may have heard you may imagine that the horseless carriage has sealed our doom; that private as well as public stables and horseshoeing shops have all closed up, and that the streets of the large cities are lined with horseless wagons. But if one looks for these machines he will be disappointed; he will see a few here and there, but not in sufficient numbers to cause him to look for another vocation. The end is not yet. The practitioner is at present as prosperous and has as much work to do as he had at any time in the past. The value of horses has increased sufficiently to induce owners to seek the services of a doctor in questions of soundness as well as in sickness. Breeding operations are most active. The demand is greater than the supply. Foreign governments, such as England and France, have for several years been draining this country of cavalry and artillery horses. Now, Germany comes to the aid of the breeder and the dealer by placing an order for 30,000 horses for the German army. True, we have at the present time more veterinarians than existed twenty years ago. There is more competition. We must be more active and accurate in our work. But competition makes better men of us; it is one of the essentials to progress. There is still light ahead of us. As old fields of labor are closed new ones will open themselves before us. The vicissitudes of time, the wave-like line now indicating prosperity, then poverty, will eventually seek a normal level on which we may stand with safety.

With these few remarks at this time I shall remain contented. At our annual meeting I expect to have the opportunity to address you with remarks containing more details and covering a larger field.

The following members were elected and introduced: W. P. Bagnall, D.V.S. (Chicago), Warren, Pa.; J. Bryce, V.S. (Ontario), Erie, Pa.; W. H. Fry, V.S., Pine Grove Mills, Pa.; C. Z. Laberge, M.D., Beaver Falls, Pa.; R. M. Phelan, V.S. (Ontario), Sharon, Pa.; J. R. Phillips, V.S. (Ontario), Northeast, Pa.; W. M. Wilson, V.S. (Ontario), Hartstown, Pa.

Next in order was Secretaries' reports. Dr. Ranck read a communication from Dr. W. H. Wilson, of Hatboro, Pa., to Dr. W. H. Ridge, in reference to being reinstated in the Association. Referred to the Executive Committee.

Reports of Committees.

Legislation. W. L. Rhoads offered a communication: Being a member of the Legislative Committee, and having no report to make of work done by our committee, that I know of, that is of importance to the profession or of interest to those assembled at Erie, I would suggest that the Association take up at this time the subject of registration and inspection of stallions standing for service within the State. The day is at hand when the farmer and horseowner will see the necessity of breeding, and we as a profession owe it to ourselves and the community to shield the unwary and careless from the error of breeding to inferior males, and I therefore offer the following resolution:

Resolved, That the President at the Erie meeting appoint a committee of three or five to take up this subject and formulate a memorial to be presented at our March meeting, there to be finally acted upon.

As the New Jersey Association is in the field, endeavoring to have the

1901 meeting of the American Veterinary Medical Association meet at Atlantic City, I would also offer the following:

Resolved, That the Pennsylvania State Veterinary Medical Association do all in its power as an Association and the members individually to assist the New Jersey veterinarians in persuading the Executive Committee of the American Veterinary Medical Association to hold the annual meeting of said Association at Atlantic City in 1901.

In the discussion of this report Dr. Hoskins spoke of the advantages of Atlantic City for the meeting of the American Veterinary Medical Association in 1901.

Dr. Irons spoke about a previous law being in vogue in reference to registration of stallions, having been brought about through the efforts of the Tri-State Association, and was enacted as a State statute in 1893.

Motion by Dr. Hoskins, that we recommend Atlantic City for the Amerian Veterinary Medical Association meeting in 1901; carried.

Intelligence and Education. An excellent report was presented by the Chairman, Dr. Felton, who was absent, and his report was read by the Secretary:

The middle of the year finds the veterinary profession in Pennsyivania in a very prosperous condition. The advance in the price of horses and the advent of good times generally have rendered horseowners sufficiently solicitous for the welfare of their animals to employ skilled treatment for their ailments, instead of depending upon the stable-boss or the friend who volunteers his services. Dealers declare that high-class horses are once more in great demand, and that the price is advancing rapidly. Judging from the great activity in the horse-markets of Philadelphia, the "horseless age" is farther off than ever, and we can say again "the horse is king; long live the king!" Recently, a prominent dealer of Philadelphia sailed for England with twenty-eight head of fine coach-horses, all ordered in advance, for which he expects to get from $400 to $700 each. The best type of heavy draught-horses, known as brewers' horses, are bringing $500 a pair, twice what they did two years ago, and are very scarce at that figure. Big horses are scarce in the Western markets on account of the heavy shipments that have been made to England, Germany, and South Africa. Pennsylvania dealers and breeders are much encouraged over the outlook for the next few years. Their horses always command a better figure than the Western horses, as they are considered to be acclimated and less subject to disease.

The farmers of Pennsylvania are becoming every year more interested in dairy farming as a source of revenue, and it has been noted that at the farmers' expositions and granges held throughout the State the dairy interests have been a prominent theme of discussion. The question of the illegal sale of oleomargarine has become a burning theme of discussion, it being alleged by the representatives of the "Pure Butter Protective Association" that 12,000,000 pounds of oleomargarine are sold annually in the State of Pennsylvania, not as oleomargarine, but colored in defiance of the law of May, 1899, and sold as pure butter in competition with the genuine article. It is further alleged that such sale entails a loss to the farmers of $4,000,000 annually. If this be true, it is no wonder that the farmers have risen up in their wrath and demanded that the law shall be enforced. Grave charges have been brought against former Dairy and Food Commissioner Levi Wells, who resigned under the pressure brought to bear upon him. His successor, Jesse Cope, and the Secretary of Agriculture, Prof. John Hamilton, have also come in for a measure of condemnation from the farmers, being charged with laxity in the prosecution of violators of the oleo law and subservience to a political machine which levies tribute from the oleo trust. In the mass of crimination and recrimination with which the papers are filled at the present time it is difficult to sift out the truth; but as Secretary Hamilton and Commissioner Cope have announced their determination to honestly enforce the law, it would be well to give them a fair chance. The conflict now going on between the Department of Agriculture and the dairy interests is not an edifying spectacle, and raises the question whether in making the department a political organization we have not taken a step backward. The old State Board of Agriculture was non-partisan, being composed of representatives from both political parties.

We are pleased to note that the proper care of domestic animals, in regard to hygiene, shoeing, etc., and the subject of good roads, have been fruitful themes of discussion at the annual grange meetings. In connection with the dairy interests we note the following communication from Consul Nelson, who writes from Bergen, May 30, 1900, as follows: "Cheese from pasteurized milk has until lately been considered almost impossible to produce, and dairymen have been at a loss how to use the churn milk, which has been sold as feed for pigs or thrown away. A short time ago a chemist at Stockholm, Dr. Frans Elarder, succeeded in effecting a preparation which solved the above-mentioned difficulties. Owing to this discovery, which he has named 'caseol,' palatable and nourishing cheese, free from the bacillus tuberculosis, can now be made from pasteurized skim-milk. This preparation has, moreover, the excellent quality of rendering cheese more digestible. Several dairies in London have made experiments with 'caseol' with the same favorable results. I will gladly procure samples of 'caseol' for any of our dairymen who desire to make trial of it." At the Farmers' National Congress, held at Colorado Springs, August 22, 1900, Mr. George Whitaker made an address on "Dairying," in which he said: "The annual value of the dairy products of the nation is in round figures $500,000,000. The production of butter has increased more rapidly than the increase in population. The census of 1850 reported 13.51 pounds per capita; the census of 1890, 19.24 pounds. One-half of the butter production is in seven States. The largest butter State is Iowa, making 10.4 per cent. of the country's production; next comes New York with 9.3 per cent, and Pennsylvania third with 8 per cent. Exports during the last ten years have fluctuated between 6,000,000 and 31,000,000 pounds. For the year ending June 30, 1899, the amount was 20,000,000 pounds. The production of milk for consumption is the second largest branch of the industry, using the product of 5,500,000 cows. In Boston, with a population of three-fourths of a million people, the large wholesalers brought into the city in the year 1899 about 95,000,000 quarts. Estimating the amount from other sources at 25,000,000 quarts, we have a total of 120,000,000 quarts. The farms netted on an average at least two and a half cents per quart, which makes the business worth to them $3,000,000. In New York, with twice the population of Boston, figures based upon the amount required to furnish the sale of milk, cream, and condensed milk used in the city are placed at

584,000,000 quarts per year, which, at two and a half cents per quart, amounts to $14,000,000." According to Secretary Hamilton, 200,000,000 pounds of butter are consumed annually in Pennsylvania, of which 100,000,000 are produced by the farmers. Mr. Eastburn Reeder, however, claims that these figures are too large, as they would mean a consumption of one pound of butter a week for every man, woman, and child in the State, which is excessive. According to the census of 1890, 76,336,012 pounds of butter were produced in the State, which was 3,000,000 less than was produced in 1880. The figures from the recent census are not yet obtainable, so we are not able to verify the above statements.

Recently a new method of building up the nutrition of tuberculous patients by feeding them on the strippings of cow's milk fresh from the cow has been adopted by a number of prominent lung specialists. Wonderful results are claimed for this treatment, and as it requires that the cow shall be perfectly free from disease, especially tuberculosis, it is a matter of great interest to the veterinarian. The war against tuberculosis is being carried on unrelentingly. More rational methods of treatment are being advocated. Disinfection and the removal of unsanitary surroundings are being more strenuously urged. The building of sanitariums in unexceptionally healthful locations under State supervision, where patients can be treated under the best possible conditions, is a long step in advance. It is gratifying to the veterinarian to know that more and more the medical profession is looking upon him as an ally in this fight, and that in guarding the purity of the meat-supply and milk-supply his services are indispensable.

The Bureau of Animal Industry has done an extremely valuable work in preparing and distributing free of charge the vaccine for blackleg. This malady in some States of the Union destroys more cattle than all the other causes combined. Texas, Kansas, Nebraska, Colorado, and the Dakotas suffer very severely. In these States there had formerly been a loss of from 10 to 20 per cent. of yearling stock annually. Since the vaccine has been used the losses have been reduced to less than one-half of 1 per cent. Four years ago 50,000 doses were sent out by way of experiment, and the results obtained were so remarkable that 350,000 doses were distributed in the following year in response to requests. In the third year 500,000 doses were given away, and in 1900 over 1,000,000 doses will be sent out. We are glad to learn that the Live-stock Sanitary Board will have $40,000 to expend this year in the work which they are so efficiently carrying out under the able direction of Dr. Leonard Pearson.

In the July number of the JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES we find a communication from Dean Conkey, of the Grand Rapids Veterinary College, in which, in our estimation, he lowers himself beneath the level that a man in his position should occupy. We are glad that it is not necessary for the Dean of a Pennsylvania college to lay a wager as to whether he possesses a certain amount of knowledge, and we believe he would be courteous enough, even in the heat of controversy, to give a man his proper title. Drs. M. P. Ravenel's and D. J. McCarthy's article in the July JOURNAL, entitled the "Rapid Diagnosis of Rabies," is an extremely valuable contribution to our English literature on this subject, and we trust it will stand the test of further experiment and give to the veterinarian a new and sure method of diagnosing this disease in doubtful cases. Dr. L. O. Lusson, of Ardmore, Pa., reports three outbreaks of rabies from February to July of this year. Dr. Lusson reports to me the following case, which, if his diagnosis be correct, will modify somewhat our views of this disease: Fox terrier, aged five months, bitten in the nose by a rabid pug; seven days after the following symptoms were noticed: Two hours of intense excitement, immediately followed by paralysis of the throat, the puppy being unable to eat or drink; hyperæsthesia of one forepaw and partial paralysis of the hindquarters. Hyperæsthesia lasted about two days and paralysis of the throat about one week, as did staggering gait. Treatment: During the period of excitement used a very hot bath; confined patient in a dark box, with plenty of fresh water and soft food. At the end of seven days paralysis of the throat gradually subsided and the patient began taking water and food. Not at any time was he aggressive. Diagnosis, mute rabies. Dr. Lusson adds: "I am fully convinced that many of these cases in young and vigorous dogs will recover." We have seen many cases of mute rabies, and all that were allowed to live died about the fourth or fifth day of general paralysis and spasm of the muscles of respiration. It is true that we did not try the hot bath, which is according to the treatment of Dr. Baisson, for which so much is claimed in human practice. It will be very interesting to follow up the history of this case and see if the cure is a complete one, or whether the animal will be subject to relapses. Further experiments ought to be made along this line. The article by Drs. Leonard Pearson and M. P. Ravenel in the August JOURNAL on "A Case of Pneumonomycosis due to Aspergillus Fumigatus," is also a very valuable contribution to our literature, and the veterinary profession is under great obligation to them for the painstaking care and deep research which were necessary in order to make the diagnosis of this hitherto unsuspected disease among cattle in this country. Drs. Salmon and Huidekoper have been untiring in their efforts to further the cause of the veterinarian in the army. Their presentation of the case before the Committee on Military Affairs of the House of Representatives was a masterly one, and it is sincerely hoped that their labor will not be in vain, but will be fruitful of good results.

(To be continued.)

SOUTH DAKOTA STATE VETERINARY MEDICAL ASSOCIATION.

IN response to a call issued by certain members of the profession, the veterinarians of South Dakota met at eight o'clock P.M., October 9, 1900, at the Depot Hotel, Huron, S. D., for the purpose of organizing a State Veterinary Medical Association.

The meeting was all that could have been desired, both in point of attendance and interest shown by those present in the movement. Dr. J. W. Elliott was elected temporary chairman and Dr. H. O. Sanford, temporary secretary, and Drs. Moore, Hicks, and Foster were appointed a committee to draw up by-laws to be approved by the members of the Association.

The by-laws having been presented and approved, election of officers took place, with the following result: President, J. W. Elliott, V.S., Aberdeen; Vice-President, D. A. Cormack, D.V.S., Watertown; Treasurer, H. O. Sanford, M.D.C., Beresford; Secretary, J. P. Foster, V.S., Selby. Drs.

Cormack, Hicks, and Moore were selected as a committee to frame suitable bills to be presented at the next session of the Legislature.

After discussing other matters of interest the meeting adjourned, to meet again in January, exact date and place to be decided upon by the President.

J. P. Foster,
Secretary.

MISSOURI VETERINARY MEDICAL ASSOCIATION.

The ninth annual meeting of this State Association opened at 9 A.M., October 3, 1900, in the hall of the Board of Education Building, St. Louis, Mo. The following veterinarians were present: Drs. E. J. Netherton, W. B. Welch, R. H. Carswell, T. V. Farmer, S. L. Shaw, E. Lee, S. Stewart, L. D. Brown, Charles Ellis, Charles Doerrie, T. E. White, V. J. Andre, H. Hempleman, R. A. Kammerer, W. S. Cass, F. W. O'Brien, W. E. Martin, T. F. Arnold, T. J. Menastrina, L. M. Klutts, D. W. Elliott, S. E. Phillips, R. C. Moore, H. Bradley, J. M. Phillips, B. F. Kaupp, G. A. Roberts, H. B. Piatt, M. McNally, E. J. Forman, D. C. Barnett, J. O. F. Price, W. H. Meadors, T. B. Pote, W. F. Heyde, C. Miller, J. W. Connaway, J. G. Slee. Among the guests of the Association were H. J. Waters, Dean and Director of the Agricultural College and Experiment Station of Missouri; Alex. Maitland, member of the State Board of Agriculture, and others.

The following veterinarians made application and were elected to membership: Drs. V. J. Andre, R. H. Carswell, T. J. Menestrina, E. J. Netherton, L. D. Brown, S. L. Shaw, E. B. Shaw, and D. F. Luckey.

The morning session was devoted to the discussion of State legislation. A bill was drafted and a committee appointed to push it in the next session of the State Legislature. A committee from the Missouri Valley Veterinary Association was accepted to assist this committee. At 12 o'clock it was moved, seconded, and carried to adjourn to visit the St. Louis Dressed Beef and Provision Co.'s plant under the direction of Dr. W. S. Cass, where the guests were afforded the opportunity to observe the methods of government inspection of cattle, hogs, sheep, and calves and their methods of stamping and tagging such meat products. A few interesting cases which had been condemned were examined, and many other things of interest were seen. At 1.30 P.M. the party was conducted to the Delmonico, at Manchester Road and King's Highway, where they were banqueted in royal style by the veterinarians of St. Louis, Dr. Charles Ellis acting as toastmaster.

At 3 P.M. a surgical clinic was held at Dr. R. A. Kammerer's hospital. Dr. R. C. Moore, of Kansas City, demonstrated a new method of administering chloroform by a specially arranged nose-bag, and performed the operation of median neurectomy. An operation by Dr. E. J. Netherton upon a carcinomatous growth affecting the eye of a horse. Dr. Moore, assisted by Drs. Ellis and Andre, performed the operation of arytenoiderrhaphy upon a "roarer." The operation of tenotomy for "stringhalt" and several other operations and clinical cases to be diagnosed were presented, which lasted until 6 P.M.

At 7.30 P.M. the meeting was again called to order, when the following papers were presented: Dr. H. Bradley, "Acute Bowel Trouble;" Dr.

Charles Ellis, "Needed Veterinary Legislation in Missouri;" Dr. E. Brainard, "Influenza;" Dr. T. J. Menestrina, "Canine Distemper;" Dr. J. W. Connaway, "Parturient Paresis in the Cow." Under reports of cases Dr. J. M. Phillips reported an interesting and unusual case in which the teeth in a thirteen-year-old dog became very loose, making extraction necessary. Some months later three new teeth developed. At 11.30 P.M. the meeting adjourned.

At 9 A.M., October 4th, the meeting was again called to order by the President, Dr. Bradley, when the following papers were offered: Dr. C. Miller, "Infectious Ulcer of the Vulva of Cattle;" Dr. J. W. Parker, "A Bacillus from an Infectious Vulvar Disease of Cattle;" Dr. S. Stewart gave a good and interesting account of the last meeting of the American Veterinary Medical Association; Dr. L. M. Klutts, "Laminitis;" Dr. F. W. O'Brien, "My Experience with Schmidt's Treatment of Parturient Apoplexy."

The following officers were elected for the coming year: President, Dr. F.W. O'Brien; Vice-President, Dr. J. W. Connaway; Secretary-Treasurer, Dr. B. F. Kaupp. A motion was made, seconded, and carried to hold the next meeting in Kansas City in October, 1901.

At 12 o'clock the meeting adjourned, and after luncheon the party proceeded to the St. Louis Fair, where an enjoyable afternoon was spent. About dark the party disbanded, ending the most successful meeting in the history of the Association.

B. F. KAUPP, D.V S.,
Secretary.

THE annual meeting of the Illinois State Veterinary Medical Association will be held at the Sherman House, Chicago, November 14 and 15, 1900. Every veterinary surgeon in the State is invited to attend this meeting. A series of surgical clinics will be held each day. Practitioners having papers to read at this meeting will please notify either of the undersigned.

W. J. MARTIN, President,
Kankakee, Ill.

A. C. WORMS, Secretary,
354 Racine Ave., Chicago, Ill.

THE next meeting of the Veterinary Medical Association of New Jersey will be held in Trenton, January 10, 1901.

A. V. M. A.

Executive Committee, 1900–1901.

Dr. R. R. Bell, Chairman, Brooklyn, N. Y.; Dr. D. E. Salmon, Washington, D. C.; Dr. M. H. Reynolds, St. Anthony's Park, Minn.; Dr. C. A. Cary, Auburn, Ala.; Dr. W. L. Williams, Ithaca, N. Y.; Dr. G. A. Johnson, Sioux City, Iowa; Dr. W. Horace Hoskins, Philadelphia, Pa.

Ex-officio.

Dr. Tait Butler, President, Indianapolis, Ind.; Dr. S. Brenton, Vice-President, Detroit, Mich.; Dr. W. H. Dalrymple, Vice-President, Baton Rouge, La.; Dr. J. F. Winchester, Vice-President, Lawrence, Mass.; Dr. F. Torrance, Vice-President, Winnipeg, Manitoba; Dr. E. M. Knowles, Vice-President, Helena, Montana; Dr. S. Stewart, Secretary, Kansas City, Kan.; Dr. W. Herbert Lowe, Treasurer, Paterson, N. J.

A CALL FROM NEW JERSEY.

STATE OF NEW JERSEY, EXECUTIVE DEPARTMENT,
TRENTON, October 11, 1900.

DR. WILLIAM HERBERT LOWE:

MY DEAR DOCTOR: I have your letter of September 18th in the matter of the thirty-eighth annual convention of the American Veterinary Medical Association, and note its contents.

As Governor of this State, I do most heartily extend to the above Association an invitation to make Atlantic City, in this State, the meeting place of its annual convention for 1901.

I do not believe your Association can find anywhere a place better adapted for its work and for the care of the representatives who may be present, and I do most heartily hope your efforts in influencing your Association to select Atlantic City will meet with success.

Very truly yours,
FOSTER M. VOORHEES.

The unanimous vote of the Veterinary Medical Association of New Jersey, at its meeting in Atlantic City on September 13th, inviting the American Veterinary Medical Association to that city in 1901, was followed by a strong petition from the Pennsylvania State Association at Erie on the 18th, urging the Executive Committee of the American body to respond to the wishes of our New Jersey colleagues.

A meeting of the Missouri Valley Veterinary Medical Association was held at Kansas City, Missouri, October 29, 1900.

The next regular meeting of the Veterinary Medical Association of New Jersey will be held at Trenton, January 10, 1901.

The next meeting of the South Dakota State Veterinary Medical Association, January, 1901.

PERSONALS.

Dr. Charles M. Cullen, of Philadelphia, is very fond of a fast horse, and frequently tries his speedy ones on the track.

Dr. W. C. Wooton, Piqua, Ohio, will succeed Dr. Coleman Nockolds at the Grand Rapids Veterinary College.

Dr. Guy M. Richards, of North Yakima, Washington, is proprietor of the Fairview Stock Farm and the owner of some very high-grade Holstein cattle.

Dr. W. W. Martin, of Philadelphia, is now engaged in commercial pursuits in the city of Chicago.

Dr. H. D. Fenimore, of Knoxville, Tenn., will visit California for a period, where he will rest for some months.

Drs. Chrisman and Moore, of the Bureau of Animal Industry, were visitors to Philadelphia early in November. They are now stationed at Washington, D. C.

Dr. C. H. Magill, of Philadelphia, will shortly return from Spokane, Washington, where he has been sojourning in the search for renewed health.

Dr. R. S. Huidekoper, of Washington, was a New York visitor early in October, and the guest of Dr. H. D. Gill for a period.

Dr. H. G. Black, of Wilkesbarre, Pa., has severed his connection with Messrs. Hogg and Phipps, of that city, and located at Atlantic City, N. J.

Dr. W. S. Manley, Pittsburg, Kan., has relinquished his practice for a period of six months and entered the Western Veterinary College of Kansas City, Mo.

Dr. E. T. Handy, of Milwaukee, Wis., has gone on a trip to England to adjust an estate in which his interests are involved.

Dr. M. Jacob, an attaché of the Bureau of Animal Industry, has severed his connection with that Department, and will enter upon private practice at Knoxville, Tenn.

Dr. Leonard Pearson, of Philadelphia, was confined to his bed for several days in the latter part of September from tonsillitis.

Dr. A. J. Savage, of Colorado Springs, Col., since his return from Detroit has passed through a serious attack of typhoid fever, but is now reported as convalescent.

Dr. A. F. Schrieber, of Philadelphia, was a visitor to Quarryville, Pa., in September, directing some special work for the State Livestock Sanitary Board.

Dr. A. G. Kern, of Knoxville, Tenn., has resumed his medical studies at the University of Pennsylvania.

Dr. A. J. Wilson, V.S., of Ontario, was an active worker among those who contributed to the success of the Industrial Exposition at Toronto.

Drs. W. S. Kooker, H. B. Cox, H. D. Martein, James Marshall, of Philadelphia, and W. L. Rhoads, of Lansdowne, were among the road-drivers on parade-day in Philadelphia, September 29, 1900.

Dr. L. E. Mead, of Tunkhannock, Pa., fills the rôle of Coroner for Wyoming County.

Dr. W. E. A. Wyman, of Burlington, has returned to Milwaukee, Wis., where, with restored health, he expects to again resume active practice.

Dr. W. Horace Hoskins, of Philadelphia, was one of the reception committee to escort Mr. William J. Bryan from Wilmington to Philadelphia.

The whole-souled veterinarian, Dr. Ramacciotti, of Omaha, Neb., is caricatured in the city papers as a leader among his people and a famed member of the Aks-ar-ben.

Dr. R. S. Huidekoper, of Media, Pa., will become a resident of Washington, D. C., after November 30, 1900.

Dr. W. F. Walsh, of New York City, has an article in the souvenir number (September issue) of the *Horseshoers' Journal* on "The Diseases, Defects, and Ailments of the Hoof."

Dr. Alexander Plummer, of the United States Army service and formerly located at Walla Walla, Washington, recently sent to the Philippine Islands with his cavalry, is now on a furlough and visiting the States.

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EXPERIMENTAL TUBERCULOSIS, HUMAN AND BOVINE, IN THE DOMESTIC ANIMALS.[1]

BY R. R. DINWIDDIE, M.D., V.S.,
ARKANSAS AGRICULTURAL EXPERIMENT STATION.

PRACTICALLY all the domestic animals are susceptible to inoculation tuberculosis—horses, cattle, sheep, goats, pigs, cats, dogs, and poultry—although with a varying degree of susceptibility. The susceptibility, indeed, varies according to the origin of the tubercular material used for the inoculation, but does not, contrary to what we might expect, exactly correspond to the liability to the spontaneous or naturally acquired disease. In the guinea-pig we have, perhaps, the most striking example of this anomaly. Although the most susceptible of all animals to inoculation with mammalian tubercle, it seems to be practically exempt from spontaneous disease of this kind, even when kept under the most unfavorable conditions of environment. On the other hand, as we shall see from some experiments of my own which I intend to refer to later, cattle, although, as is well known, the most prone of all the domestic animals to spontaneous tuberculosis, do not show any greater susceptibility to the inoculation disease than either sheep or pigs. When the less virulent variety of tubercle bacilli which we obtain from the human consumptive is employed they show a susceptibility even less in degree than these latter animals. I propose to bring forward experimental proof of this fact first before attempting to furnish the explanation.

Cases of tuberculosis naturally acquired have been recorded in pigs, dogs, cats, horses, sheep, and goats in the order of frequency somewhat as named. This includes about all the species which come under the observation of the veterinarian. The disease in these animals which I have just named presents two features which I wish especially to refer to. The first is its relative infrequency. In pigs, outbreaks, if they may be so called, are observed in which many animals on a farm may be found diseased. In the other species of animals just mentioned only isolated cases occur, and these are of extreme rarity.

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[1] Presented at the thirty-seventh annual meeting of the American Veterinary Medical Association, held at Detroit, Mich., September 4, 1900.

The second feature I allude to is this, that in these animals the contagion seems generally to have an origin extraneous to the species concerned. Pigs become infected by feeding upon milk from tuberculous cows; cats and dogs in the same way, or more frequently by consuming the sputa of phthisical human beings. A few cases of tuberculosis in horses are on record in which a probability of infection from association with tuberculous cows is referred to, while in other cases no history is obtainable. In sheep and goats the source of infection is also uncertain in the very few cases of spontaneous tuberculosis which have been described in these animals.

While it is impossible to deny that, from close cohabitation, a transmission of the disease from animal to animal of the same species may occur, we know from the facts just stated that such transmission must be extremely rare. Whether or not part of the tuberculosis found in pigs may have its source in other animals of the same kind previously infected by tuberculous cows' milk must remain in question. On this point we have really no information. We can hardly assert, therefore, that tuberculosis prevails as a plague spread by cohabitation and perpetuated by transmission in the same species except in the case of mankind, cattle, and poultry.

I have brought forward these points in order to show that if we hypothetically assume the existence of races of tubercle bacilli corresponding to the zoological species in which they are chiefly parasitic, we can find grounds for such an assumption among the mammalia only in the human race and the bovine, the conditions on which we believe such an evolution to depend—long and exclusive parasitism in one host-species—being lacking in the other species of domestic animals. Such a theory of race differentiation finds some support from facts which have been observed in connection with other species of pathogenic bacteria, among which I may especially mention the bacilli of hemorrhagic septicæmia, which includes a group of organisms presenting close similarity in morphological and biological characters, but differing in the zoological species toward which their pathogenic activity is chiefly directed. In tuberculosis of fowls—avian tuberculosis—the existence of a variety of tubercle bacilli differing from the mammalian is well recognized from cultural and morphological peculiarities as well as by experimental inoculations in animals.

Some slight differences, morphological and cultural, have been observed between cultures of tubercle bacilli obtained from sputum and those isolated from bovine tubercular products. A more striking difference is found when their virulence is tested by inoculation of certain animals. The main facts which we possess in this connection have been brought to light only recently, and by the investigations of Theobald Smith, who has made an extensive series of inoculations with sputum and bovine tubercle-bacilli cultures on cattle and on rabbits. By these comparative tests with cultures the greater virulence of those of bovine origin for these animals has been clearly shown. Comparative tests with cultures had not previously been made, but a study of the records of the earlier inoculations made with disease products shows that this higher virulence of bovine tubercle toward rabbits and cattle had been recognized even before Koch's discovery of the specific bacillus.

In a previous report[1] I have endeavored to gather together from the scattered records of inoculation experiments, both early and recent, the data upon which we might base an opinion as to the relative virulence for the domestic animals of human and bovine tubercle or artificial cultures of the bacilli from these respective sources. I have also in that report given the details of some experiments of my own in which cattle, pigs, sheep, and poultry were inoculated with crude tubercular material or with artificial cultures. The conclusions arrived at from a study of all the data obtainable may be best expressed by the following brief quotation: "To sum up the matter in a few words, it may be said that bovine tubercle has been shown to be more virulent than the human variety for cattle, sheep, goats, and rabbits, while no distinction has been shown in the case of horses, pigs, cats, and dogs." It should be stated that the data upon which these conclusions were based, though embracing all furnished to us by the literature of tuberculosis experimentation, was far from convincing, the evidence in the case of cattle alone, among the domestic animals, being at all complete, although even here to some extent conflicting.

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[1] Bulletin No. 57, Arkansas Agricultural Experiment Station.

Referring to my own experiments, already published, a repetition of which, however, I desire to avoid here as far as possible, I may make the following statement, expressing the results obtained in the briefest manner possible: Cattle showed a greater susceptibility to inoculation with bovine tubercular products than to tubercular sputa of man. This difference was more strongly brought out by inoculation of artificial cultures, on account, presumably, of the larger doses employed. The results of inoculation from sputa were local only, and in no case exhibited the characters of a progressive disease manifestly interfering with the health of the animal. Inoculations from diseased cattle occasioned more extensive lesions, although in several animals apparently also of a non-progressive character. In other cases the disease was either acute and rapidly fatal, or approached the characters of the naturally acquired disease.

Sheep showed a high susceptibility to inoculation with a bovine culture, while their susceptibility to sputum cultures remained in question.

Pigs were found to be readily infected and prone to suffer from a generalized disease by inoculation and feeding with both varieties of tubercle or tubercle bacilli in cultures. A difference in susceptibility to the two varieties was not demonstrable.

Fowls—ordinary farm-yard chickens of a few months old in my experiments—showed themselves entirely invulnerable to massive intraperitoneal injections of cultures from both sources.

I have since then supplemented these experiments with others, using in this instance artificial cultures only. The use of artificial cultures possesses the advantage that the doses of inoculating material can be better compared and much larger amounts injected than is possible with the natural disease products. In the tubercular disease of cattle the specific bacilli are frequently so rare that their demonstration is difficult, and the numbers present in any material which can be obtained suitable for injection apparently insufficient to produce a decided pathological effect on the larger animals. I have, accordingly, in my later experiments made use of artificial cultures injected in rather massive doses into the peritoneal cavity. Contrary to what might be supposed, this route of infection, in cattle at least, seems to give rise to more extensive and progressive disease than the pulmonary.

In order to make the comparison more thorough, cultures of the bacilli of human pulmonary phthisis from separate families and cultures from diseased cattle of different herds were employed, ten separate cultures in all. Seven of these cultures were isolated by myself by passage through the guinea-pig in the usual way—four sputum cultures and three bovine—while three others—bovine cultures—I obtained in the laboratory of comparative pathology, Harvard Medical School, through the courtesy of Professor Smith. They have been tested on calves, pigs, sheep, and cats, and incidentally also on guinea-pigs. In this paper I propose to give the details of the completed experiment on pigs, and the results of the inoculations with sputum cultures on calves and sheep, the experiments with bovine cultures on these latter animals being as yet incomplete.

EXPERIMENT I. *Tuberculosis Complicated with Swine-pest and Swine-plague.* Although this experiment from the point of view from which it was undertaken must be considered a failure, it possesses sufficient interest of its own to justify its repetition here, showing, as it does, the influence of pre-existing pulmonary lesions on the course of tubercular disease subsequently acquired.

Three pigs, each about six months old, numbered in records 10, 11, and 12, were inoculated with sputum cultures, while another of the same size was inoculated with a bovine culture. Two of these pigs came from a farm on which hog-cholera was prevailing, while the other two, after undergoing some immunizing experiments, had been fed in my own pens with cultures of the bacillus of this disease. None of them showed at the time any distinct symptoms of being infected. Of the cultures employed, Sputum I., inoculated to Pig 10, was the first transfer from the guinea-pig, a six weeks' old culture; II. and III. were second transfers, twenty-four days old, and also recently isolated. All were large growths on 5 per cent. glycerin-serum. Culture, Bovine I., used on Pig 9, was the eighth transfer, a smaller growth of one month's duration on the same medium. It had been isolated one year previously, and grown since that time on serum. About a pin-head-sized piece of each of the cultures rubbed up in sterile normal salt solution was injected in each case into the peritoneal cavity in the hypogastric region on May 12, 1899. The two lots were kept in separate pens.

All these pigs soon began to pine. Pig 12 suffered from intense dyspnœa with paroxysms of coughing for two or three weeks before it died, July 21st—that is, two months and one week after inoculation. Pigs 11 and 9 died July 30th and August 15th respectively, while Pig 10 was killed for examination September 25th, four and a half months after inoculation.

I cannot give here in detail the post-mortem findings in each case, nor is this necessary, since the abdominal lesions were nearly alike in all. These represent the local lesions, since the inoculated fluid becomes distributed over the whole serosa. They occur as small yellow, seed-like nodules, distributed more or less thickly in the serous covering of the abdominal cavity and contained organs. The distribution is unequal, the great omentum and sulci between the coils of the large intestine containing the largest number and also those of largest size. This, I may state here, applies to all animals which I have tested by this method of inoculation. These nodules occur in varying number on the peritoneal surface of the diaphragm, stomach, and spleen. They are rarer on the walls of the intestine. Some are apparently within the membrane, others at the free end of delicate connective tissue fringes. The surface of the liver usually shows, in addition, a number of yellow non-projecting spots of the size of a pin-head or larger, which are also tubercular changes.

Of the four pigs of this experiment one only—that which lived the longest—showed any involvement of the abdominal lymph nodes, those situated between the coils of the large intestine. In the lungs the most interesting changes were found. In two cases at least—11 and 12—the condition was plainly one of swine-plague pneumonia with pulmonary tuberculosis superadded. In No. 12 both lungs were solidified, and on section showed many pus-containing cavities from the size of a walnut down. Other areas were gray on section, hepatized, but free from cavities, while in other places, again, where the disease was less advanced, the lung, though hepatized, was less resistant to the knife, dark red in color, and dotted with small necrotic foci, a picture of a common type of pneumonia seen in contagious swine disease associated with the swine-plague bacillus of Smith. In Pig 11 the greater part of both lungs were also involved; the section was white and caseous looking, purulent fluid oozed from the smaller bronchi, a few nut-sized cavities were present, and many points of softening, indicating the beginning of abscess formation. There was also some pleurisy with adhesions. Distinct tubercles were not found in the lungs of either of these animals, but the proof of the tubercular complication was furnished by the microscopical examination. Cover-glass preparations from all parts of the incised lung showed tubercle bacilli in numbers comparable to what we find in the sputa of advanced pulmonary phthisis of man. Rabbits inoculated from the lungs of each of the pigs died of swine-plague bacilli septicæmia. In the large intestine of both, the ulcerous lesions which we regard as characteristic of swine-pest or "hog-cholera" were present. Moreover, from other animals of the same herd the bacillus of this latter disease was isolated.

Pig 10, also inoculated with a sputum culture, and killed in four and a half months, was found free from extraneous disease. The tubercular changes in the thoracic cavity were limited to the supra-sternal lymph nodes.

Pig 9, inoculated with the bovine culture, showed a more extensive involvement of the abdominal serosa than the other three, tubercular pus-pockets in the peribronchial lymph nodes and complete invasion of the lungs with small yellow tubercles not yet broken down in ulceration. In the cæcum were a number of superficial swine-pest ulcers.

Having digressed somewhat to give this experiment in detail, it is unnecessary to give more than the briefest comment upon it. I should notice in particular the extraordinary rapidity of the extension of the tubercular infection from the peritoneum to the already diseased lung, the absence of distinct tubercles in the lung, and the enormous multiplication of tubercle bacilli in the diseased pulmonary tissue or pathological secretions of the bronchioles. As a comparative test it may be noticed that the pig receiving the bovine culture showed more extensive tubercular disease than the one inoculated with the sputum culture and uncomplicated with swine-plague infection.

EXPERIMENT II. *Comparative Test of Sputum and Bovine Cultures on Pigs. Inoculation with Sputum Cultures.* As the cultures used in this experiment were the same as those used for other inoculations yet to be described, their history may be given here once for all.

Sputum I. Fourth transfer, one month old, five months from animal.

Sputum II. Fifth transfer, three to four weeks old, five months from animal.

Sputum III. Fifth transfer, four weeks old, six months from animal.

Sputum IV. Second transfer, four weeks old, three and a half months from animal.

Of the patients from whom the sputum was obtained it need only be said that all were ordinary cases of pulmonary disease in more or less advanced stage, three of which have since died, while the fourth has been lost sight of.

All cultures were made on 5 per cent. glycerin serum (beef), and showed a vigorous growth when used. They were all, therefore, recently isolated cultures and presumably possessed of their full original virulence.

Four healthy four-months-old pigs received each an inoculation similar to that already described. The inoculations were made on August 12, 1899, and the animals kept under observation for nearly a year, when they were killed for examination, in July, 1900. They were kept constantly penned, and three of them ultimately became unthrifty and much emaciated, partly due, perhaps, to the lack of sufficient green food.

The dissection of all of these animals revealed changes such as spoken of before in the abdominal cavity, but the nodules were smaller in size, not very numerous, and all calcareous. In one the lungs contained numerous small yellow tubercles, and, in the apices, areas of consolidation with formation of cavities, recalling the condition found in the same disease in man. In two others the tubercles in the lung were less numerous and showed merely as small calcareous masses the size of millet seed enclosed in cysts, from which they were easily shelled out and without marked hyperplasia around them. They were good examples of what may be called healed tubercles. In the fourth animal no pulmonary changes were found. In these old calcareous tubercles the specific bacilli could not be demonstrated ;[1] in the apical abscess cavity they were numerous.

(To be continued.)

HEMORRHAGIC SEPTICÆMIA IN CATTLE.

REPORT FROM MINNESOTA STATE BOARD OF HEALTH.[2]

S. D. Brimhall, V.M.D., Veterinarian.
Louis B. Wilson, M.D., First Assistant Bacteriologist.

THE Minnesota State Board of Health has recently been called upon to investigate three outbreaks of an infectious disease of cattle which has proved to be of unusual interest.

The first outbreak occurred on the farm of Mr. R. W. Edmundson, near Red Rock, Minn. The first seven head of cattle were found dead, August 17, 1900. Another died August 18th. August

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[1] They also proved non-infective when inoculated to the guinea-pig.

[2] The historical data has been collected and the clinical observations made by Dr. Brimhall; the post-mortem observations by Drs. Brimhall and Wilson; the laboratory work by Dr. Wilson, and the inoculations of and observations on vaccinated cattle by Drs. Wilson and Brimhall.

23d and August 24th four others died. August 26th another died. August 28th another, almost dead, was killed for post-mortem examination. September 1st another calf died, making fifteen animals in all from a herd of twenty-six.

The second outbreak occurred on the farm of Mr. Joseph Arth, five miles west of Forest Lake, Minn., and twenty-five north of the location of the first outbreak. Between August 21st and August 27th four head of cattle died. On August 28th, another, almost dead, was killed for post-mortem examination. On September 4th another died, making six animals out of a herd of sixteen.

The third outbreak occurred on the farm of Mr. Joseph LaVoix, one and one-half miles east of Clarissa, Minn., and one hundred and ten miles northwest of the location of the second outbreak. September 20th twelve head of cattle were found dead in the pasture. On September 24th another died. September 25th another died, and yet another almost dead was killed for post-mortem examination. September 29th another animal died, making sixteen cattle out of a herd of twenty-five.

Rumors of other outbreaks were received during the period of the above-mentioned ones, but when investigated were found to be too vague to warrant any conclusions as to their nature.

The attacks all occurred in pastures containing much brush. Some low land was present in the first instance and much in the last two. The weather during the preceding spring and early summer had been hot and dry. For several weeks previous to and throughout the period of the outbreaks the weather was hot, with frequent heavy rains. Insects of all kinds, especially mosquitoes, were very numerous. Of the thirty-seven cattle dead of the disease, four were sucking calves, twenty-eight were one to two years old, and five were three to five years old.

The symptoms, where death did not occur before the animals were seen, were fairly uniform. The animals at first appeared depressed in spirits and stiff or slightly lame when moving. The appetite was lost early, and difficulty in swallowing was present when swelling of the throat occurred. The temperature ranged from 103.6° to 105.6° F., but dropped rapidly before death. Swellings appeared most frequently on the lower portions of the legs, in the submaxillary spaces and occasionally on other portions of the body. All the animals had a black, tarry, or a bloody discharge from the bowels. Some passed bloody urine. A few had a bloody serous discharge from the nose. The animals which were sick over two days became very rapidly emaciated. Evidence of pain was present in but few cases. Most of the animals seemed to drop to the ground and die without struggling. In some of the cases death occurred within six hours after the symptoms were first observed, in most of them within twenty-four hours, while a few lived three or four days after the onset. In a total of sixty-seven animals in the three herds, thirty-seven showed symptoms of the disease, and of these none recovered, making a mortality of 100 per cent. of the affected animals. Careful disinfection with fire and corrosive sublimate, with change of well animals to new pasture, was practised in each outbreak. Quarantine measures were also rigorously maintained.

Post-mortem examinations were made of nine animals, four of which were killed when almost dead. A foamy, bloody discharge was present, post-mortem, from the nose in some cases, and clotted blood from the rectum of others. Decomposition was not unusually rapid. Abrasions of the skin of the legs were noted on some of the animals, and where these occurred the affected limbs were most swollen. On removing the skin hemorrhagic areas were found in the subcutaneous connective tissues and superficial muscles. These areas were from a pin-point in size to several inches in diameter, the proportion of large and small areas varying in the different animals. In some cases the large hemorrhagic areas were scattered over the entire body, while in others only a very few, about one inch in diameter, were found superficially. Areas showing swellings superficially were found to be hemorrhagic and œdematous to the extent of one or two inches in depth and from three to six inches in transverse diameter. The legs and submaxillary spaces contained most of these hemorrhagic and œdematous areas. The blood was slightly lighter in color, but otherwise apparently unchanged by the disease. The submaxillary glands and all the structures in the region of the larynx and pharynx in all the animals showed in greater or less degree hemorrhage and œdema. All the internal organs showed large and small hemorrhagic areas. These varied in size and numbers in the different animals. The lungs, liver, and kidneys contained the fewest large areas. No signs of purulent inflammation or fibrinous exudation were found in any of these organs. The heart muscle in most of the cases was intensely hemorrhagic. A large quantity of bloody serum was usually present in the pericardial sac. The spleen was normal in size and consistency when autopsy was made immediately after death. The color was normal except for the constant presence of a large number of hemorrhagic areas.

The stomach walls always showed several or many hemorrhagic areas involving the entire thickness of the wall. Some of these were five or six inches in diameter. The intestines always showed the same lesions as those noted in the stomach walls, and in addition in most instances there was present an intense general enteritis with bloody mucus or tarry bowel contents. In some cases there was also present a general peritonitis. The bladder walls were hemorrhagic, and in some cases a general cystitis was present, the bladder containing in these instances bloody urine.

Autopsies were made on nine of the thirty-seven animals dead of the disease. Direct cover-slip preparations, direct cultures and portions of tissue were collected from each animal from several or all of the following sources: 1. Subcutaneous hemorrhagic area. 2. Affected lymph gland (cervical or inguinal). 3. Heart's blood. 4. Lung. 5. Spleen. 6. Liver. 7. Kidney.

The direct cover-slip preparations were stained with eosin and methylene-blue. The direct cultures were made in quadruplicate on Löffler's blood serum and glucose agar and in plain and glucose broth. They were grown aërobically and anaërobically at both room and incubator temperatures. (The anaërobic cultures were made to determine the presence particularly of the bacilli of symptomatic anthrax and of malignant œdema. Cultures were kept at room temperature to aid in differentiating putrefactive organisms.) From all the animals on which autopsies were made immediately after death, namely, those designated as Red Rock No. 3, Arth Nos. 1 and 2, and La Voix No. 3, one bacillus unmixed with any other organism was obtained from all the organs tested. From all the animals on which autopsies were made several hours after death, namely, those designated as Red Rock Nos. 1 and 2, and La Voix Nos. 1 and 2, the same bacillus was obtained but mixed with (*a*) a motile bacillus with polar staining (possibly B. coli communis, possibly belonging to the same group as the special organism); (*b*) B. coli communis; (*c*) a large putrefactive bacillus growing well at room temperature and very faintly at incubator temperature; (*d*) in the spleen of Red Rock No. 2, which six days previously had been vaccinated with "black-legine," the bacilli of symptomatic anthrax were very abundant and highly virulent to guinea-pigs.

The bacillus found so uniformly present was recognized from the first as belonging to the hemorrhagic septicæmia group. It will be remembered that this group contains bacilli which are probably but varieties of the same species—shown by numerous observers to be the cause of chicken cholera, rabbit septicæmia, rinderseuche, schweinseuche (swine plague), wildseuche, buffelseuche, etc. The organism is a bacillus, though from its tendency to show marked polar staining and to form chains of shortened individuals, may be mistaken in examinations of a single specimen for a diplo- or streptococcus. The bacilli are from 0.6μ to 0.8μ in transverse diameter, and from 1.0μ to 1.5μ in length. The ends are rounded. Sometimes in cover-slip preparations from solid organs, and very frequently in those from body fluids and liquid cultures, the bacilli are in chains of three to eight individuals. In most specimens the bacilli have the ends intensely stained, and the central portion but slightly so. In some chains in rapidly growing broth-cultures this is not the case, but many of the individual bacilli are evenly stained throughout and may also be somewhat pointed at the ends. Löffler's methylene-blue brings out the polar staining to good advantage. The bacilli do not retain the stain by Gram's method. The organism is non-motile. It is aërobic, but prefers the depths rather than the surface of media. It will also give a faint growth anaërobically in glucose media even when the strictest precautions are used to exclude oxygen. It grows best at incubator temperature, and more slowly at room temperature. In plain and dextrose broth a heavy growth occurs in twenty-four hours. In Dunham's solution a small amount of indol is formed in forty-eight hours. Calpaldi Proskauer's medium ·is turned faintly acid after twenty-four to thirty-six hours, and partly decolorized at the bottom of the tube. Litmus milk becomes more acid and more decolorized up to forty-eight hours. No coagulation has occurred during ten days' growth in the incubator.

On Löffler's blood serum cultures direct from the diseased tissues (in every case, nine animals) do not grow well. Later cultures after several generations in the incubator in broth, etc., give a fairly abundant growth on the serum. The streaks have even edges slightly raised and are creamy white in color, not differing materially in tint from the (opaque) serum on which they are grown. On potato no growth has been obtained with any of the strains. In gelatin plates small granular white to slightly yellowish colonies appear after forty-eight hours. Those on the surface are not so large as those deeper in the medium. In gelatin stab cultures a light growth occurs on the surface, while along the needle-track numerous colonies like those in the deep portions of plate cultures develop. On plain and glycerin agar slopes a thin, narrow, granular, transparent growth occurs. The edges are slightly raised and uneven. On rabbit blood agar the growth is similar to that on plain agar, but much more abundant. In dextrose agar stab-cultures growth occurs along the entire needle-track. No gas is evolved.

The pathogenesis of the bacillus has been tested only on rabbits, guinea-pigs, and calves. Rabbits inoculated subcutaneously with small doses of pure cultures of the recently isolated organism die in from sixteen to forty-eight hours. At autopsy ecchymoses and larger hemorrhagic areas comparable in appearance and distribution to those in the cattle dead of the disease were found. The organism was present in pure culture at the site of inoculation in the heart's blood and spleen. Guinea-pigs inoculated subcutaneously with relative larger doses of the recently isolated bacilli died in from four to six days. Post-mortem examination showed a few hemorrhagic areas subcutaneously and in the internal organs. The bacilli were isolated in pure cultures from the hemorrhagic areas, heart's blood, and spleen.

It will be seen from the foregoing that the organism under investigation does not differ from the bacillus of the hemorrhagic septicæmia of other observers—with a pure culture of which it was compared in parallel series—except its tendency to form longer chains and its ability to grow slightly under anaërobic conditions.

The identity of the organism having been determined, it seemed desirable to attempt protective inoculations of exposed animals along the line of the protective inoculations against chicken-cholera already perfected by Pasteur and others. That such inoculations might be of possible good in the current outbreaks, it was decided to inoculate cattle direct without waiting to determine accurate dosage, etc., through a necessarily long series of experiments on laboratory animals. The board was able to undertake these experiments immediately through the intelligent and unselfish cooperation of Mr. Joseph Arth, on whose farm one of the outbreaks occurred. Four animals were selected for the experiments, and were designated "Vac. A," "Vac. B," "Vac. C," and "Control D," respectively. "Vac. A" was a yearling steer weighing about 400 pounds. "Vac. B" was a yearling heifer weighing about 450 pounds. "Vac. C" was a yearling heifer weighing about 550 pounds. "Control D" was a six-months-old heifer weighing about 300 pounds. The daily normal temperature of these animals ranged from 101° to 102° F.

On September 12, 1900, a mixture of twenty-four, forty-eight, and ninety-six-hour broth-cultures[1] recently isolated from cattle dead of the disease on the Arth farm were filtered through porcelain and the filtrate used for inoculation subcutaneously of the first three animals. "Vac. A" was given 1.5 c.c., "Vac. B" 1 c.c., and "Vac. C" 0.75 c.c. The temperature of all rose slightly within the next twenty-four hours, that of "Vac. A" rising 1.5° F. "Vac. A" also showed a slight swelling and soreness at the site of inoculation. The animals remained in good health for the next eight days.

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[1] For the production of resistance it is probable that older cultures should have been employed.

On September 20th a mixture of equal parts of a twenty-four-hour and a forty-eight-hour broth-culture of the bacillus recently inoculated from another animal dead on the Arth farm was shaken up with an excess of chloroform and allowed to stand for three hours in a tightly stoppered flask. The stopper was then removed, the flask plugged loosely with sterilized cotton and heated for one hour to 60° C. The supernatant fluid was then decanted from the sediment and used for subcutaneous inoculation of the first three animals of the series. Each animal was given 5 c.c. The temperatures of all were but slightly elevated at the end of the next twenty-four hours. "Vac. A" was then given 10 c.c. more of the heated culture noted above (which in the meantime had stood for twenty-four hours in a warmly-heated room, giving opportunity for the multiplication of any bacteria not killed by the previous treatment). Within twelve hours the animal's temperature had risen 3° F. It was apparently quite sick from this on, though no swelling occurred except at the site of inoculation, and no bloody discharges were present. The animal died thirty-seven hours after the last inoculation.

Post-mortem examination showed a very large hemorrhagic area at the site of the last inoculation. None was present at the sites of the first and second inoculations. Small hemorrhages were also present elsewhere in the subcutaneous tissues and internal organs, though not so abundant nor so large as those seen in the majority of the animals dead of the disease through natural infection. The legs were affected as in the other animals.

Direct cover-slip preparations and cultures from the site of inoculation, spleen, and heart's blood gave the bacillus inoculated in pure culture.

The question might fairly be raised whether the animal was killed by a natural infection, by too large a dose in the experimental inoculation, or by a combination of the two. Unfortunately there is no way of determining the matter absolutely, since the opportunity of studying the exact nature of the material used for the third inoculation was lost at the time.

On October 2d a mixture of a twenty-four-hour, forty-eight-hour, and a twelve-day culture from an animal dead of the disease on the Arth farm was used for inoculating subcutaneously animals "Vac. B" and "Control D." "Vac. B" was given subcutaneously 25 c.c. of the mixture, and "Control D" 10 c.c. of the mixture.

The roan heifer, "Vac. C," was also placed under the same surroundings as to food, housing, etc., and her temperature taken as control for the two inoculated animals. The temperatures for the next sixty hours were as follows:

	Vac. B.	Control D.	Vac. C.
Animals just driven in from pasture:			
October 2d, 5 P.M.	103.3°	103.6°	103.4°
Animals inoculated as noted above:			
October 2d, 9 P.M	102.9°	105.3°	102.4°
" 3d, 6 A.M.	102°	103.8°	101°
" 3d, 12 M.	102°	103.9°	102°
" 3d, 6 P.M.	102.4°	104.2°	102°
" 4th, 6 A.M.	101.2°	104.4°	101.2°
" 4th, 12 M.	102°	104.3°	102.1°
" 4th, 6 P.M.	102.6°	104.8°	102.4°
" 5th, 4 A.M.	102°	105.4°	101.3°

The calves were all driven in from pasture at the same time and placed in stanchions in a dry barn. They were fed hay only during the observations. The weather was very warm for the season of the year, and moist. The animal previously inoculated, designated "Vac. B," showed absolutely no symptoms from the inoculation of the live culture except a slight swelling and tenderness at site of inoculation for the first thirty-six hours. The animal previously uninoculated, designated "Control D," showed a marked rise of temperature (see table), which remained permanently elevated. The animal had a marked swelling and tenderness at site of inoculation which extended to the adjacent regions. Lameness was present after the first twelve hours. The animal remained lying on its side with its forelegs drawn up in a constrained position. At the end of the first twenty-four hours all the observers were positive the calf would be dead before morning, but while still very sick the next morning, after thirty-six hours, the calf was not dead, and by 8 A.M., thirty-eight hours after inoculation, was apparently feeling somewhat better. At this time, in order to if possible hurry up the experiment and kill the animal more quickly, it was given subcutaneously on the left side of the abdomen 15 c.c. more of the mixture used for the original inoculations. The symptoms were intensified from this on.

On October 11, 1900, "Control D," which since its last inoculation, October 5th, had appeared to be sick, though able to eat and move about fairly well, was killed and an autopsy made at once. No evidence of affection of subcutaneous tissue about the ankles was visible. On removing the skin at the sites of inoculations there was found a small cavity (several inches in diameter) surrounded by a large area very œdematous and showing old and more recent hemorrhages. At one site of inoculation were two separate cavities, one very markedly circumscribed and filled with a clear fluid resembling serum more than pus. The other corresponding to this was not sharply defined, but seemed to be composed of pockets lying in the interstices of the tissue. At some distance from one œdematous area there were found a few very small hemorrhagic areas exactly resembling those seen in the clinical cases.

The lymph glands in front of the shoulder and along the neck generally—*i. e.*, those draining the area directly affected by the inoculation—were all enlarged. The smaller ones were black and hemorrhagic throughout, and the larger ones were much darker than normal, apparently in a state of partial recovery from previous general hemorrhagic infiltration, and contained here and there a few recent hemorrhagic areas.

The inguinal glands were similarly affected. No pathological lesions were found in any of the internal organs except the kidneys, which were much swollen, with old and recent hemorrhages between the capsule, in the pelvis, and between the lobules.

Direct cover-slip preparations, cultures and tissues from (*a*) pus cavity at site of inoculation, (*b*) œdematous area surrounding site of inoculation, (*c*) involved lymph glands, (*d*) spleen, (*e*) kidney were collected. The kidneys were preserved in Kaiserling's fluid.

After ninety-six hours in the incubator all cultures except those from pus at site of inoculation remained sterile. Cultures from pus at site of inoculation gave pure cultures of the inoculated organism.

SUMMARY. 1. Three outbreaks of hemorrhagic septicæmia in cattle—hitherto, it is believed, not reported as occurring in these animals in the Northwest—have occurred in Minnesota during August and September, 1900.

2. Of sixty-seven animals in the three herds, thirty-seven showed symptoms of the disease, and all such died—a mortality of 100 per cent. of the affected animals.

3. The chief symptoms were loss of appetite, fever, stiffness, swelling of legs and submaxillary region, and a black, tarry, or bloody discharge from the bowels. Bloody urine and bloody nasal discharge were present in some cases. Death occurred usually in from six to twenty-four hours after the first appearance of the symptoms.

4. The chief lesions discovered at autopsy were ecchymoses and large hemorrhagic areas in the subcutaneous connective tissue muscles, lymph glands, and throughout all the internal organs. The cervical lymph glands, heart muscle, spleen, and alimentary canal were most affected.

5. From the nine animals on which autopsies were made the same bacillus was obtained from all tissues examined. Where the examination was made immediately after death—four cases—it was unmixed with any other organism.

6. The bacillus was identified as belonging to the group causing chicken cholera, rabbit septicæmia, rinderseuche, schweinseuche (swine plague), wildseuche, buffelseuche, etc., by direct cover-slip preparations, parallel cultures in various media, and by inoculation of animals in which the characteristic lesions were thus reproduced and from the tissues of which the inoculated bacilli were recovered in pure culture.

7. An attempt was made to immunize cattle by the injection of filtered, and, later, of killed cultures of the bacillus. The experiments are as yet too few and the results not sufficiently tested to warrant conclusive statements as to the protective value of the inoculation, but it would appear that a fairly high degree of immunity has thus been produced.

DISEASES COMMON TO MAN AND ANIMALS.[1]

By John M. Parker, D.V.S.,
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The diseases common to man and animals, or, rather, to be more correct, to man and the lower animals, are numerous. The relationship between the various species of animals is a close one, more so, perhaps, than one might think from a mere casual glance at the subject. "There is but one animal kingdom," says Wesley Mills, "governed by the same natural laws, applicable alike to man and his fellow-creatures, lower in some respects in the scale, but sharing with him liability to disease and death." "There is only one science and art of medicine, and all the various bodies of workers in this vast field should form but different battalions of one great army, fighting for the prolongation of vigorous life and the mitigation of pain in every quarter to which the power of medicine can reach."

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[1] Read before the Haverhill Medical Club, October, 1900.

The diseases common to man and the lower animals may be roughly divided into contagious and infectious diseases, and parasitic diseases. Among the former, perhaps, the most important are anthrax, diphtheria, glanders, rabies, tuberculosis, and others; among the parasitic diseases may be mentioned trichina, measles, or cysticercus cellulosa, a larval form of the tænia solium of man, and others.

Anthrax. Anthrax in cattle is a disease that is practically unknown in New England, although not uncommon in New York State, Pennsylvania, Kansas, Minnesota, Nebraska, and many other States in the West and South. It appears in man usually from the handling of carcasses and hides of infected animals, and, except when carried from place to place by hides or hay and grasses, it is generally restricted to certain farms or localities.

Stagnant, undrained lands and certain seasons, when heavy rains occur, after hot, dry, warm weather, play an important part in its spread. Especially is this true if the carcass of an animal dying from anthrax is buried near the surface, where the conditions are favorable to spore-development. Then the bacilli, having rapidly increased in the body, or the formation of spores (which may remain capable of development for years) having occurred, the land is flooded with water, and the spores are carried to the surface, the grass becomes infected, and so in time the infected hay is carried away to spread infection to some other locality.

An animal affected with anthrax usually develops a high fever, sometimes as high as 106° or 107° F., and death follows in from twelve to twenty-four hours, or the disease may take a subacute form, and œdematous swellings may appear under the skin and in various parts of the body. Death usually supervenes in a few days' time.

On post-mortem examination the spleen is usually much enlarged and black in color. In the thoracic and abdominal cavities there is usually considerable serous exudations. The only positive method of diagnosis is the microscopical examination for anthrax bacilli. Treatment, as a rule, is of little avail. Preventive treatment consists in draining and turning up the land; in destroying the carcasses by burning, when possible, or destroying them by quicklime, or chloride of lime, and burying them deeply.

When anthrax appears in any locality preventive inoculation should be practised on the cattle on that farm and in the neighborhood. In France, where there is livestock insurance, preventive inoculation is required by the insurance companies.

Diphtheria. Diphtheria in man and the lower animals has not as yet been positively proven to be identical. Many cases of diphtheritic exudate are found in the domestic animals, but so far the presence of the Klebs-Löffler bacillus has not been positively demonstrated. It would seem, however, that to a large extent this may be due to the absence of observation and careful clinical, microscopical, and bacteriological examination rather than to the absence of the bacillus.

In this connection an interesting series of cases has been reported in a paper read by Dr. Winchester, of Lawrence, before the A. V. M. A. in 1896. He reports a series of cases that occurred in his practice. In all, six cows died from a disease of the larynx characterized by difficulty in swallowing, salivation, swellings, and discharge from the eyes and nose, hurried respiration, and great weakness. All showed similar symptoms.

Through the courtesy of Dr. Winchester it was my privilege to be present at two of the autopsies, and to make a microscopical examination of tissue from two of the cows. On the mucous membrane of the larynx there was a tough, adherent, yellowish-brown membrane. On microscopical examination sections showed a dense, fibrinous exudate, beneath which was a mass of small-celled proliferation. On staining with methylene-blue (Löffler's) solution, numerous short, thick, slightly-curved bacilli resembling the Klebs-Löffler bacillus were seen.

This was confirmed by Dr. H. C. Ernst, who writes as follows:

HARVARD MEDICAL SCHOOL, BACTERIOLOGICAL LABORATORY,
BOSTON, March 29, 1894.

DEAR DOCTOR: We have found in section of material from the trachea of the cow examined bacilli that, in size and general appearance, resemble very closely, if they are not identical with, the Klebs-Löffler bacillus.

Dr. Whitney wants to know if you are going to send the specimen for the museum? Very sincerely,

HAROLD C. ERNST.

This subject is one that needs thorough investigation, but in any event, whether the diseases are identical or not, whether the Klebs-Löffler bacillus is present or not, it should be remembered that diphtheria in some form is not uncommon in the lower animals, and that there is some danger of infection being carried from one person to another, especially by the smaller domestic animals like the cat and the dog.

Glanders is an insidious disease, most commonly found in the horse, and through the use of mallein (like tuberculosis) it will be found to be far more common in a latent form than has been generally supposed.

Glanders seems to be seriously increasing in this State. Since 1879, when the matter was first taken up by the State, and when there were forty-three glandered horses killed, the number has tremendously increased. There were 18 horses killed by the State for glanders in 1885; 75 were killed in 1886; there was an outbreak in the stables of the Boston Street Railway Company in 1887, when a number were killed, and a still larger number were tied up in quarantine. Each year the number has kept increasing. In 1894 there were 160, then 206, 341, 402, and 387, until in 1899 there were 543 cases reported. This is a serious state of affairs, although the increase is partly explained by the fact that greater care is taken in looking up cases and reporting them to the State officials.

Glanders is the most dangerous disease affecting the horse. Bovines are not generally susceptible. Probably, in the majority of cases, the disease is contracted through the respiratory organs, although infection through the digestive tract is not uncommon.

Some few years ago a series of cases came under my notice that were interesting and are worth recording. In a stable in the central part of the State fourteen horses were accommodated, seven in one end of the barn and seven in the other. The centre of the barn was open to the front, and the wagons were backed into this part. The doors by which the horses entered the stable opened off to the right and left from this shed. The wagon-pole and neck-yoke used by the horse originally infected were left standing beside the door by which the barn was entered, and, seemingly attracted by the discharge on the neck-yoke, all the horses at this end of the stable on their way in and out used to stop and lap the neck-yoke hanging on the pole beside the stable-door. Unfortunately, before any suspicion was aroused every horse at this end of the barn, with one single exception, had contracted the disease and were finally destroyed.

Inoculation through the digestive tract has also taken place in a series of experiments that will be referred to later. In the meantime it is enough to state that Professor Nocard, of Alfort, caused twelve horses to drink water in which a measured quantity of glanders culture had been placed, and all developed the disease.

The typical symptoms of glanders are a viscid, yellowish-gray, gluey discharge of unhealthy character, sometimes mixed with blood due to ulcerative destruction of small vessels. On the lower part of the nasal septum chancres with dentated, thickened edges and grayish bottom usually ultimately form. The submaxillary glands enlarge, and generally have a hard, circumscribed feel to the touch. As the disease develops the general nutrition appears to suffer. Unfortunately, however, typical symptoms are not always present. Many cases are obscure, and it is only on the most careful examination that evidence of glanders can be detected. These are by far the most dangerous, because they spread the disease while they themselves are undetected.

Farcy is simply a superficial manifestation of the same disease in which the lymphatics are involved. Tubercles are usually found on the lungs, but the lesions on post-mortem examination may be found in any of the organs of the body. Cases have frequently occurred in man, usually from direct contact with a glandered horse. About two years ago a case came under my observation where a man having charge of a stable where glandered horses were found developed farcy sores on his legs. He was under treatment for some time, and finally recovered. Recently a friend and his son both died from glanders contracted while caring for a horse under the impression that it was suffering from simple catarrh.

Diagnosis in suspicious cases can usually be confirmed by the mallein-test, which is similar to the tuberculin-test for tuberculosis. Guinea-pig inoculation is, as a rule, also satisfactory, the swelling of the testicles being characteristic.

Treatment of glanders in horses is forbidden in this State, the law providing that all horses suffering from glanders must be destroyed. Some interesting experiments, however, were carried on in the fall of 1896 by Nocard in conjunction with the War Department in France. Twelve horses were given water containing a measured quantity of the culture. From four to eight days afterward they were feverish, and about two weeks afterward all had contracted the disease, and all reacted to the mallein-test by both thermic and local reaction. A month later another injection of mallein was followed by a similar reaction, only less severe. On the third month five horses showed such marked clinical symptoms of glanders that they were destroyed, and in another month a sixth died.

The injections were kept up every month, and at the sixth month none of the remaining six animals were giving any reaction to the mallein-test. Eight months afterward four of the six were destroyed, and in all miliary tubercles were found in the various forms characteristic of glanders, but sterile. *The animals had recovered.* The remaining two horses were returned to their work in the army, where they will be carefully watched for future developments.

The experiments have since been repeated by Nocard with similar results, until he has reached the conclusion that complete absence of thermal reaction after its full development or after a gradual diminution *means death to the bacillus, means recovery.*

An interesting case in this same line is reported in the *Veterinary Review* for December, 1895, in a translation from the German. "The author has had occasion to treat with mallein a case of human glanders. This observation, unique at this day, brings him to the following conclusions:

"1. Mallein obtained by cultures gives the man affected with chronic glanders a reaction far less violent than in the horse. Two or three drops are sufficient, instead of 1 c.c., as required by the horse. The intensity of the reaction is proportionate to the dose, but goes on decreasing as the injections are repeated.

"2. Each injection gives rise to an œdematous and painful swelling, which rapidly disappears.

"3. During the days following the injection the temperature often drops to a very low degree, and stays there for twenty-four to forty-eight hours, without any objective or subjective symptoms.

"4. The reaction is accompanied with very abundant polyuria, even with profuse perspiration. The urine is almost always thoroughly alkaline.

"5. The action of the injections of mallein upon the local manifestation of glanders has proved very efficacious.

"The author has also attempted to establish the curative value of mallein on guinea-pigs, dogs, and horses.

"In the first it is mallein obtained with the aid of the serum of bovines which seemed to have the greatest efficacy. A recovery has been obtained in a horse which so far has lasted a year."

These experiments have been so successful that further trial and investigation would seem to be called for, and it seems to me that some work in this direction should be done by our State authorities.

(To be continued.)

ELEMENTARY OBSTETRICS.

By W. E. A. Wyman, M.D.V., V.S.,
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AND

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The veterinarian who selects the country as his field of labor will of necessity be called upon to do more or less obstetrical work.

Those who succeed in establishing a reputation as obstetricians do so, in the vast majority of cases, at the expense of their clients and patients. It is not our desire to dissect obstetrical teaching as the colleges furnished it and as it is still offered by some. How many collegiate obstetricians of to-day do not have a kindly feeling for the farmer who helped them make their first case of dystocia a success? Charity begins at home, and practical obstetrics should begin at college. But does it? Since that important part of the young veterinarian's clinical training is—to put it mildly—neglected, the conscientious student necessarily looked for other channels of instruction, namely, literature on the subject of practical obstetrics. All those acquainted with other languages but English did find treatises dealing with that subject to some extent, but most of them of antediluvian date, representing able but antique views, quite incompatible with the present times. Fleming's *Obstetrics*, being a compilation of what we discussed a moment ago, might be classed with them. While intensely thankful for the contents of such a work, representing a great amount of labor, nevertheless it is inadequate, needing revisions and additions as much as most obstetrical chairs from which many of us were supposed to gather such common and original facts as to render us fit to at least compete with the farmer obstetrician. These few remarks represent truth, and the progressive spirit which begins to exhibit itself among the colleges will no doubt find means to elevate the department of obstetrics to the proper standard.

The following points are those which in the course of time were gathered in an extensive obstetrical practice, and are recommended as tried facts, with our best wishes.

It cannot be denied that a long arm with a slender and strong hand is likely to be of more service than the opposite anatomical arrangement. Nevertheless, the obstetrician equipped with the latter need not despair.

During warm weather it matters but little what he wears, but in the winter some precautions are necessary to prevent the contraction of a more or less serious cold. Do not remove any underwear for obvious reasons; put over it either a heavy armless woollen shirt or cardigan jacket, and over this an operating apron which is split a little above the knees so that each half can be tied around the corresponding leg a little below the knee. Next order a clean pail of hot water, put into it a proper amount of Parke, Davis & Co.'s germicidal soap, and as arms and hands get cold and soiled bathe them in this hot water containing mercuric iodide. The results are: Disinfection and no cold, two vital points to the much-exposed rural practitioner. Also get some clean towels when ordering the water. It is well to emphasize the fact that you want a clean pail and a clean towel, as nine farmers out of ten would bring a swill pail and some old dish-rag—rather incompatible with asepsis.

Being taken care of yourself, secure a place which is adequate for the occasion; in other words, make room for yourself and patient. If the stall slopes much and has a gutter at the end, have the owner bring in straw, or, better yet, cornstalks, and fill the gutter so that the cow cannot slip and possibly fall. Fix the head of the cow with a five-ring halter, and, if possible, call for two able-bodied men. In giving orders issue them pleasantly but firmly. The farmer, with his tendency to become a jack of all trades, is very likely to disagree with you, and offer amendments. The more serious the case, the less will he encourage you, and since a great many may have exhausted their own and neighbors' skill in trying to deliver the cow or mare, as the case may be, the owner as well as all bystanders—sometimes quite a crowd—could hardly see how anybody else could succeed after they failed. Anything you do or say is acutely observed, and only too often poorly interpreted by those about.

Questions put to you are often overheard, as both the place and person, as a rule, are unfit for arguments. Exhibit no undue haste in word or deed, but impress them with the fact that you superintend the whole thing, and, above all, keep the helpers busy, especially those who constantly instruct you.

We will suppose the animal to be standing up and properly fastened with a halter; tail, vagina, and perineum have been cleansed with germicidal soap and water, your hands disinfected, nails trimmed, etc. The question arises, Is she ready to give birth? Has she gone her full term or not? In the case of the cow the farmer does not usually know the day or month when she is due to calve, on account of the ruinous practice of letting the bull run with the herd. It is quite important to settle that point, as false pains may have alarmed the owner and caused him to send for the surgeon. On vaginal exploration in false pains the mucus covering the palmæ plicatæ like a stopper still adheres firmly, and the os uteri is closed, the pains are short and sharp, the animal appears hyperæsthetic, kicks, and switches the tail. In such a case leave her alone, and, since most farmers would be greatly dissatisfied unless she gets some medicine, give her a bromide of potassium treatment. On the other hand, when the cow on your arrival is past false pains, and entered the period of true labor pains—dolores—you find the external os uteri more or less dilated, the otherwise sticky mucus of the palmæ plicatæ has become detached, and part of it is lying in the vagina or possibly hanging from it. Palpate the pelvic canal carefully, both bony frame and soft parts, to see whether the dimensions permit the passage of the young. In the cow it is well to empty the udder, provided it is full and strutting. Many a cow rendered uneasy by the distended udder will become quiet as soon as she is milked, and from that moment attends to her business nicely. Quite often objections are raised right here, but insist upon the milking, as it is your duty to protect the owner against his own ignorance and superstitions, at least in such a case. Sometimes it occurs that the cow will not rise, and obstinately refuses to respond to the ordinary means employed to make her get up. In such a case a good yelping dog taken to her head will do wonders. When a mare is down and unable to rise do not waste any time trying to induce her to rise. As regards the cow when in a recumbent position, endeavor to keep her on the right abdominal side as much as possible, as continuous pressure upon the rumen when lying on the left side results in paresis of that organ, which means tympanites and discomfort. Should the fœtal membranes have been ruptured and the genital passage is dry, the uterus, as the result of aspiration, will adapt itself closely to the fœtus, rendering manipulations difficult. In such a case inject water at body temperature into the uterus. In the mare call for five pounds of lard and pass it in the shape of a ball as far back into the genital passage as possible.

Some cows, the genitals of which are hyperæsthetic, jump around, throw themselves, etc., rendering any work impossible. Here order two boxes as high as the abdomen, and one twelve-inch board; pass the board under the belly right in front of the udder, resting the two ends of the board on the boxes. The cow now goes down in front, while the elevated posterior extremity is in nice shape for an examination or delivery. When down and unable to rise, cow or mare, put the hobbles on them, elevate them behind by means of straw or cornstalks. On the whole, it is a good rule to work with your patient elevated behind, as it helps to overcome a great many obstacles. Inability to make any progress in securing a leg or head, for instance, while the mother rests on the right side, should induce you to put her into a dorsal position, and if that does not work try her on the left side, etc. "Finish whatever you undertake—persistence is a fundamental factor in obstetrics." Breech presentations will tax your skill, strength, and patience, and of the latter always take an extra set along. If you cannot lasso the posterior extremities of the young in a breech presentation, fasten a strong rope or chain to a beam overhead and raise the hindquarters of the female. While repelling the young in this position, it standing, so to speak, on its head, be sure that the whole fœtus moves along, or the head, when caught anywhere about the uterus, will rupture it. In such a case the mare is best chloroformed. When cording any part of the fœtus, convince yourself that the cord encloses only parts of the fœtus and not a portion of the fœtal membrane, as subsequent traction might sever some cotyledons, exposing the animal to a serious hemorrhage. In the employment of traction while delivering the young, remember the line of guidance: as the fœtus enters the pelvic canal pull in the direction of the sacrum—upward. As it passes through the canal exert downward traction, and as it leaves the maternal passage, again pull upward, but pull only during the exhibition of labor pains. When repelling a fœtus the frequent pains often throw the young toward you again and again, interfering with the regular course materially. In such a case hold the fœtus steady during one or two throws, and in the majority of cases you may now repel without experiencing much resistance from the mother. On an average, the power exerted by three men ought to be the limit of traction employed in extracting a fœtus. Of course, there are instances where greater power by far may be safely employed, for instance, in the delivery of an emphysematous calf.

After the young is born let the mother lick it, or, if circumstances prevent, have it rubbed dry, and in the colt give surgical attention to the umbilical cord—apply some desiccating antiseptic, a mixture of tannic acid and acetanilid being very useful.

To prevent excessive after-pains and possibly eversions of the uterus, elevate the mother behind. Cleanse all parts that became soiled, and unless the calf is allowed to suck the colostrum have her milked. Feed lightly at first, and mothers of a lymphatic temperament might be given a saline laxative.

Remove the placenta in the cow forty-eight hours after delivery, while immediate removal is essential in the mare, and to the one removing a mare's after-birth for the first time we suggest care and patience; loosen it by lifting the membrane from its attachment; sometimes an hour may be required to remove it *in toto*. When a piece is left in the uterus the mare soon begins to strain violently, and by the time you have reached your office, congratulating yourself upon the success of the task, the farmer will be after you with a club.

What obstetrical instruments are required? Certainly not those which are ordinarily offered for sale. If you have a set, take them along. Spread them out and utilize those bright, impractically-shaped, office-constructed things to hypnotize the audience, or, better yet, hide them, as even your farmer customer, with his practical turn of mind, might point out their deficiencies. Have one blunt and one sharp hook, one repeller, no less than four feet long; one set of pulleys carrying a nine-sixteenths of an inch rope (thirty feet); guiding ropes (window-cords, cotton ropes), you need four, each not less than four feet long, and each with a stationary eye, so that the rope may pass through with ease, as your fingers get tired lassoing legs, neck, head, etc.

Drugs needed are: antiseptics, such as creolin, formalin, alum, and Parke, Davis & Co.'s germicidal soap (the latter we prefer). Alcohol as a stimulant; strychnine as a nerve tonic; spiritus ammoniæ aromaticus and ol. terebinthinæ as stimulants and antifermentatives; and, finally, fluid extract of secale cornutum when the uterus is exhausted.

TETANUS.[1]

By E. Mathews, V.S.,
JERSEY CITY, N. J.

We will not enter into any discussion as to the different divisions given to it by different writers, except to say that it is a continuous contraction of the muscles, causing rigidity of the parts they supply.

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[1] Read before the Veterinary Medical Association of New Jersey, Atlantic City, September 13, 1900.

We will speak of tetanus as we find it in our everyday practice. We are called in to see our patient in a more or less advanced stage of sickness, and are told he will not or cannot eat, appears more or less stiff in his gait, and has been so for a day or two. After a more or less careful examination it is pronounced a case of tetanus; prognosis very unfavorable.

As every practitioner is left to his own judgment in the treatment of tetanus, I have tried some experiments on my own account, and will give you the results of some of them.

Case I.—A roan gelding, about five years old, weight about 1200 pounds. I was called to see my patient, November 24, 1897, and was given the privilege of taking him and doing what I saw fit with him. Through the kindness of Dr. G. W. C. Phillips, druggist, I procured a small vial of woorara, having the seal and stamp of the government still unbroken; it was very old. I began by injecting hypodermatically one-eighth of a grain three times a day, increasing it to three-eighths of a grain three times a day.

I had this case under treatment about seventeen days, with favorable results. He is still working. It was a very severe case, his jaws becoming locked very early; at no time did the muscles of respiration become very much affected. I am of the opinion that tetanus in this case was induced by the removal of a tumor about October 1st, the wound to all appearances making a complete recovery.

Case II.—Brown gelding, eight years old, weight about 1500 pounds. Was treated a few months later from same vial of woorara, beginning with two-eighths of a grain three times a day, with favorable results. This case was not as bad as Case I., but was well defined, and was under treatment about ten days. This case used up that vial of woorara. From that time on my success with the drug has been negative. I attribute it to the inferiority of the preparation. I am of the opinion that if we could get a really good article, and could see our patient in the first stage of the disease, we could cure a large percentage.

Having read in some medical journal of the treatment of tetanus with carbolic acid and belladonna, I tried the combination in two cases with favorable results.

Case III.—Bay gelding, six years old, weight about 1450 pounds; in good flesh. Was called in to see him in early summer. When I first saw him tetanus had already developed, yet he had very slight symptoms. I put him under the carbolic acid and belladonna treatment. He was out of harness about five weeks. Is at present working in a lumber truck all right. I gave him about thirty drops each in a little water with a hard-rubber syringe.

CASE IV.—Brown gelding, about twelve years old, used as a driving horse; very high-strung and nervous; weight about 1100 pounds.

I was called in about May 1st. A well-developed case from the start. Had the patient taken to another part of the stable in a narrow stall, darkened. Gave him same doses as Case III. Had him under treatment about two months, greater part of the time in a sling. In all of the cases I kept some thin gruel before them.

In this case I had a very careful, painstaking nurse, one who did just as he was told, which is a great help to us. These are the only cases which I have treated with this combination, and am well pleased with the results.

TUMORS ON THE SHOULDER.[1]

By W. S. PHILLIPS, V.S.,
READING, PA.

TUMORS on the shoulder consist of a hardened swelling in the levator humeri and the pectoral muscle, which soon takes on unhealthy adhesions, and in some cases are as large as six or eight inches in circumference. Met with in carriage-horses, but mostly in draught-horses; generally caused by ill-fitting collars, causing unequal pressure. Have had considerable trouble with six or eight cases recently, the majority of which had been treated. Found the parts very much swollen and false adhesions formed. First paid attention to the horse's diet, and for several days applied cooling lotions to reduce the swelling.

After poulticing, blistering and setoning, I find in the majority of cases the only way is to dissect out the whole enlargement, which sometimes penetrates to the depth of five or six inches, appearing dangerous while operating. The wound is sometimes brought together above by several stitches, leaving the lower part of the wound open, aiding the discharge to escape. Now I apply cooling lotions externally once a day, and syringe the wound once daily with a lotion of sulphate of zinc, which I find the best. The wound heals in a short time.

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[1] Read before the semi-annual meeting of the Pennsylvania State Veterinary Medical Association, Erie, Pa., September, 1900.

I met with a case about eight weeks ago. The subject was a white mule. There were two enlargements, inflamed and hardened. Took into consideration melanosis, as this appeared a suspicious case, being a white mule. First used lotions, then a stimulating liniment, which contained a few ounces of liquid blister (used this daily) for several weeks, which did not have much vesicating effect. The patient was about six miles from the city, and as the liniment had all been used the owner then poulticed, and in the course of a week brought the patient in. I found the smallest tumor had disappeared. The larger one soft and fluctuating. I lanced it and found it contained six ounces of healthy pus. Made a free opening, using the sulphate of zinc solution as before; also cooling applications externally once daily.

ANTISEPTIC THERAPEUTICS.[1]

By J. F. Winchester, B.Sc., D.V.S.,
LAWRENCE, MASS.

(Concluded from page 654.)

Iodine is an active antiseptic whether used in the gaseous, liquid, or solid state. One part in 4125 parts of water arrests the action of diastase and ptyalin; one part in 7817 arrests the action of pepsin; one part in 7000 destroys both bacilli and their spores (Wernitz and Koch). Structures, whether natural or morbid, may be gradually liquefied and absorbed by its use. Medicinal doses are absorbed; they also stimulate glandular activity and promote metabolism. In the tissues iodine may again be set free and combine with serum albumin, but iodine albuminates are unstable, and hence readily removed.

This appears to explain the action of iodine and its compounds in the liquefaction and absorption of pathological products. It is excreted by the mucous surfaces and glands, being found notably in the saliva, perspiration, and urine.

Dr. H. L. Jenckes, in his notes on the "Therapeutics of Croupous Pneumonia," refers to a remedy which has been advocated as having a destructive or at least an inhibitory action on the pneumococcus. This is ethyl iodide. He quotes Professor Bartholow, who says: "The influence exerted by it on the cough, the labored breathing, and the general malaise is a remarkable fact. It has the single advantage that no apparatus is required; it vaporizes at ordinary temperature; it causes no irritation of the mucous membrane, and it does not act as an anæsthetic. The cases in which it was used were all apparently much benefited by its inhalation, and all expressed a sense of relief to the general malaise and to the specific symptoms—cough, bronchial irritation, and expectoration—the last mentioned being soon changed in character and in quantity.''

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[1] Presented before the meeting of the American Veterinary Medical Association, Detroit, Mich., September, 1900.

Ethyl iodide should be freely inhaled, not only for its supposed specific effect upon the pneumococcus, but also for the relief it affords the pulmonary symptoms. Compressed air and creosote are recommended by Professor See in apical and fetid bronchitis, the inhalation to be made daily or more frequently. The results obtained would appear to be surprising, a marked amelioration being observable in most cases. Professor W. L. Williams says that intratracheal medication has much to recommend it when rapid effects are desired, especially in those pulmonary diseases where antiseptics are indicated. At the time of writing his article on the subject he had not met with noteworthy success in treating suppurative bronchitis by intratracheal injections of antiseptics, and he was unable to find any record of attempts to administer per trachea for therapeutic purposes large volumes of liquids either as mechanical detergents or as topical or general antiseptics.

By referring to his article in the *Veterinary Review*, vol. xxi., No. 9, you will find a very interesting account of two cases of traumatic bronchitis treated antiseptically through the trachea.

Dr. Jules Daurial gives his observation of lavage of the whole intestinal tract in eleven infants who were suffering from obstinate fetid diarrhœa, which checked the disease in all instances. The fluid used was weak solutions of lactic acid and creolin. One case of typhoid fever was treated in the same way, with good results. Dr. W. W. Johnson, of Washington, advocates the local antiseptic treatment of acute dysentery, from the fact that the affection itself was local, being confined to the colon and the rectum.

The rationale of the method was shown in the fact that we had a local inflammatory process with rapid infiltration of tissue; a tendency to ulceration and necrosis and extensive destruction; while the decomposition and retention of decomposing solids and fluids in the bowels would result in auto-infection, with also the probable dependence of these conditions upon the introduction of a parasite.

In closing this paper I shall digress from my first statement, that new material would not be introduced, and will call your attention to some facts by Dr. A. W. Balch and Mr. W. R. Brinckerhoff, of the Harvard Medical School, relating to a "Possible Cause of Azoturia" and the "Pathology of Azoturia."

A Possible Cause of Azoturia.

A. W. BALCH.

(*Laboratory of Pharmacology, Harvard Medical School.*)

The similarity between certain of the symptoms existing in the disease azoturia and those commonly found in lead-poisoning seemed to make the chemical examination of urines and tissues in these cases desirable.

Examination of the urines from both azoturia cases and normal horses showed the presence of lead in several instances, although negative results were also obtained in both the normal and pathological cases. Chemical examinations were then made of brain, liver, spleen, kidney, and psoas muscle whenever possible, in order that the distribution of lead in the system might be studied.

Organs were taken from normal horses and those in which death had followed azoturia, pneumonia, and colic. As in the urines, lead was found in the tissues of cases other than azoturia, but the amounts were much larger and the lead was much more widely distributed in the azoturia cases.

The quantity found in several of these cases, notably the livers, was very large, indeed, as shown approximately by the final tests employed, while in cases other than azoturia a large amount was never found.

The qualitative results have been placed in tabular form, but the quantities could not be expressed, as we have no method for accurately determining these small amounts of lead.

Organs from Azoturia Cases.

No.	Brain.	Liver.	Spleen.	Kidney.	Psoas.	Urine.	Blood.	Remarks.
12	+	+	+	+	+	—		
17		+		—		+		
22	+	+	+	+	+	+	?—	Elimination of lead increased by potassium iodide.
23	+	+		—		—		Lead found in urine after potassium iodide.
26	+	+	+	+	—		+	
33		+	+	+	+			
35	+	—	+	—	+	—	+	
37	+	+	+	+	+		+	

ORGANS FROM CASES OTHER THAN AZOTURIA.

No.	Brain.	Liver.	Spleen.	Kidney.	Psoas.	Urine.	Blood.	Remarks.
25		+	—	+	+	—		Pneumonia.
27		—	—	—	—			Runaway.
28	+	+	—	—	+		—	Some interstitial change in kidney; broken leg.
34		+	—	—	+			Colic.
36	—	—	—	—	?+			Colic.
38	—	+	—	+	—			Colic.

No.	Urines. Azoturia.	No.	Urines. Azoturia.	No.	Urines. Azoturia.
1	+	7	+	22	+[1]
2	+	12	—	23	—[2]
3	+	15	—	24	—
4	+	16	+	29	—
5	—	17	+	30	—
6	+	21	+	31	—

No.	Urines. Normal Horses.	No.	Urines. Normal Horses.	No.	Urines. Normal Horses.
8	—	11	—	25	—
9	+	13	+	28	—
10	—	14	+	32	—

The results of chemical examination of the spleen are particularly noticeable.

In every case of azoturia lead was found in the spleen, while it was found in none of the other cases examined.

Potassium iodide was administered in two cases of azoturia, numbered in our tables 22 and 23.

In Case 23 no lead was found before the administration of potassium iodide, but after its use very large tests were obtained.

In Case 22 the amount eliminated was greatly increased.

Lack of material prevented similar experiments in normal horses. For examination of urine about one litre was used in each case. For tissue examination one-half the brain, weighing when fresh about 300 grammes, or dried, 50 grammes, and of other tissues 300 grammes fresh or 100 grammes dry, were used. The tissue or dry urine was treated with an excess of nitric acid and allowed to stand until the violent reaction was over.

To the resulting fluid, after concentration to a small bulk, 28 c.c. concentrated sulphuric acid was added and the heat continued until charring resulted. The fat was not removed. The process was then continued by alternately adding nitric acid and charring by heat until the organic matter was practically destroyed. During the heating a part of the sulphuric acid was always decomposed so that the product (free from nitric acid) varied in bulk from 10 c.c. to 25 c.c., depending in part upon the amount of solids present.

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[1] Increased by potassium iodide.

[2] Found after potassium iodide administration.

This product was diluted with an equal volume of water and the mixture again diluted with an amount of alcohol equal in volume to the sulphuric acid and water used. From this mixture after standing several days the lead was deposited as sulphate. The deposit was washed on a paper filter with 50 per cent. alcohol made acid with sulphuric acid, and was then extracted with 10 per cent. ammonium acetate solution. From this solution the lead was precipitated as sulphide, and in case much iron was present it was removed with very dilute hydrochloric acid. The lead was then converted into chloride by concentrated hydrochloric acid, and removed from the filter by hot water. After evaporation the lead chloride was dissolved in a few drops of hot water, the solution filtered if necessary, and four final tests made—*i.e.*, potassium dichromate, potassium iodide, sulphuric acid, and hydrogen sulphide. Lead was considered as present only when all four tests were obtained.

The paper is presented merely as a preliminary statement of the facts obtained thus far, and in no sense as conclusive evidence of the origin of azoturia. The wide distribution of lead makes proof by chemical means alone impossible, but the results obtained are certainly suggestive.

An attempt is to be made to produce the disease in normal horses by the administration of lead salts.

THE PATHOLOGY OF AZOTURIA (PRELIMINARY COMMUNICATION).

W. R. BRINCKERHOFF, S. B.

(*From the Sears Laboratory of Pathology.*)

The material upon which the following description is based was derived from eleven autopsies upon undoubted cases of azoturia occurring in Boston between January 1 and May 1, 1900. The work was undertaken as supplementary to the chemical investigations of Dr. Balch, and is not intended to be a complete description of the pathology of the disease. The liver, spleen, kidney, and psoas muscle only were studied. For control, the organs from three normal horses, three cases of colic, and one of pneumonia were examined.

GROSS ANATOMY. The organs were examined as soon as possible after the death of the animal, usually within six hours. The following points were observed:

Liver. In the acute cases the liver, on section, showed nothing abnormal. When the disease had been of a longer duration the cut surface presented small pale-yellow areas corresponding in distribution to the centres of the lobules.

Spleen. In the spleens of two cases there could be felt firm lumps from 1 to 5 cm. in diameter, which on section of the organ were seen to be of a deeper red color than the rest of the spleen substance. These hemorrhagic infarcts have been frequently observed in the spleen in azoturia. In the other cases examined nothing of note was seen in the fresh spleen.

Kidney. The examination of the fresh kidney showed nothing but a marked congestion of the organ.

Psoas Muscle. In all accounts of azoturia the psoas muscle is spoken of as exhibiting a marked degree of fatty degeneration. In every case examined this muscle on section was notably pale, and bits of it teased out in glacial acetic acid showed many fine and coarse fat drops, both free and within the muscle fibres. The same appearance was noted in a case of pneumonia.

MICROSCOPICAL ANATOMY. *Technique.* All tissues were fixed in Zenker's fluid for twenty-four hours, washed in running water over night, and hardened in 80 per cent. alcohol. The material was then cut into small pieces and passed through two changes of 95 per cent. alcohol, two changes of absolute alcohol, one of chloroform, and one of chloroform saturated with paraffin, remaining in each twenty-four hours. The tissue was then embedded in hard paraffin and cut. Sections from each organ were stained with Unna's methylene-blue and eosin, Mallory's connective tissue stain, and alum hæmatoxylin.

Liver. All the livers examined had certain characteristics in common. The capillaries in all were markedly injected. The liver cells contained fine brown granules, and the perivascular spaces were dilated, containing granular material taking the acid stain, presumably precipitated albumin of the serum. This pigment in the liver cells occurs in the livers of normal horses, but not to the extent seen in azoturia. Aside from these slight variations from the normal, two distinct types of lesion were found. In five cases the picture was one of a diffuse process, while in four the lesion was distinctly local in character.

In the first type the centres of the lobules seemed most affected. In the area around the central vein the liver cells were relatively small, distorted, and presented a greater or less degree of vacuolation.

In the second type small areas, bearing no constant relation to the anatomical structures of the organ, were to be seen, in which the liver cells had more or less completely disappeared, the space left being filled with dilated capillaries. Around such areas the nuclei of the liver cells frequently did not stain, the protoplasm being vacuolated and often invaded by leucocytes.

The focal and diffuse lesions were not found associated in any of the cases examined.

Spleen. The spleen presented no constant lesion. In seven of the nine examined histologically there was a large amount of brown pigment, in the form of spherules from $\frac{1}{2}\mu$ to 1μ in diameter, enclosed within cells in the pulp. Two spleens showed in the centre of the lymph follicles a circumscribed area composed of epithelioid cells, many of which contained in their protoplasm nuclear fragments. The appearance simulated closely that seen in diphtheria.

Kidney. The kidneys exhibited the most constant lesions of any of the organs examined. In every case there was acute parenchymatous degeneration, shown by a more or less extensive degeneration of the convoluted and the collecting tubules. Casts were occasionally found. In six of the ten cases in which the kidney was examined microscopically there was evidence of a chronic interstitial process, consisting in small areas in round cell infiltration, containing atrophied tubules (one case), or in the formation of interstitial tissue around the glomeruli, with occasional bands of connective tissue surrounding atrophied tubules and glomeruli. There was, in several cases, a diffuse increase in the interstitial tissue of the pyramids. In one kidney almost every glomerulus was surrounded by more or less connective tissue.

Psoas Muscle. As a matter of routine the psoas muscle was examined histologically in every case. In seven out of ten there was a more or less extensive degeneration of the muscle fibres. The change was selective, attacking some fibres and leaving wide areas of normal structure intact. The affected fibres were unevenly swollen, and contained hyaline areas which were irregularly eroded and often invaded by leucocytes. In a single muscle fibre degenerated portions were seen alternating with apparently normal muscle structure. A dissolution of parts of some fibres had taken place, and the sarcolemma could be traced from one hyaline mass to another, the intervening space containing only a small amount of granular detritus. In some cases there was evidence of repair shown by the presence of young connective tissue cells around the necrotic fibres. In the psoas of the one case of pneumonia examined the same appearance of degeneration was seen, and was there rather more intense than that observed in any of the azoturia series.

SUMMARY. In the eleven cases of azoturia examined changes were found in the liver, spleen, kidney, and psoas muscle. The lesions were:

	Cases.
Fatty degeneration of the liver	5
Focal necrosis of the liver	4
Proliferation of the epithelioid cells in the lymph follicles of the spleen	3
Hemorrhagic infarcts in the spleen	2
Pigmentation of the spleen	7
Parenchymatous degeneration of the psoas muscle	9
Acute parenchymatous degeneration of the kidney	10
Chronic interstitial nephritis	8

CONCLUSIONS. 1. The acute degenerations of the liver and kidney, the proliferation of epithelioid cells in lymph follicles of the spleen, and the focal necroses in the liver are similar to lesions found in man during various of the acute infectious diseases. In the case of the human being such changes are generally regarded as manifestations of a toxæmia.

2. The pigmentation of the spleen indicates nothing more than a destruction of blood corpuscles, and is common to a number of diseases in both man and animals.

3. The degeneration of the psoas muscle is quite analogous to the Zenker degeneration seen in typhoid fever.

4. The chronic interstitial nephritis would indicate either that some toxic substance had acted for a considerable time, or that there had been previous attacks of an acute nature.

We have, then, the picture of a pathological process combining chronic and acute factors. This condition seems most reasonably explained by postulating the presence in the organism of a toxic substance, preferably one capable of causing both acute and chronic changes.

In this study of the lesions found in azoturia, pathological changes have been found which merit further study, and it is my intention at some later date to carry out this investigation in more detail. Experiments upon animals have been begun, but the material at hand from that source is not sufficient to be reported at present, and is also reserved for later publication.

The table formulated by Dr. Balch gives the result of the chemical examinations made by him, the plus (+) mark showing those cases in which the larger amount of lead was found.

The treatment that has been so favorable in these cases of late—the iodide of potassium—is not a digression from the object of this paper, but in my opinion helps to sustain the theory of antiseptic therapeutics.

Works referred to: Finlay Dunn—*Veterinary Medicines, Veterinary Record, Medical Record, American Veterinary Review.* McFarland—*Pathogenic Bacteria.* Hare—*Practical Therapeutics.*

Dr. F. F. Hoffman, of Brookville, Pa., recommends in Cæsarean section in sows that the incision in the cornua of the uterus be made perpendicular and not horizontal, as it lessens very much the hemorrhage from the uterine walls.

THERAPEUTICAL AND PHARMACEUTICAL NOTES.

UNDER THE DIRECTION OF W. J. MARTIN, M.D.C.,
KANKAKEE, ILL.

GASOLINE, OR PETROLEUM ETHER, AS A SURGICAL DETERGENT. In a paper read before the International Association of Railway Surgeons at Detroit, Dr. B. L. Riordan, of Toronto, unreservedly advocated the use of ordinary gasoline as the best agent for preparing the field of operation. He was first led to try this agent on a railway employé whose crushed hand was grimy with the black oil of the mechanic, and has been using it for four years with the best of satisfaction. He finds that it does not irritate fresh wounds or granulating surfaces any more than does water. It is best applied by taking an ordinary wire made of cotton-batting or sterilized gauze and wiping the parts which it is desired to cleanse. The gasoline immediately evaporates and leaves the surface dry and clean and perfectly free from grease. This will be found an advantage where sectional strapping by adhesive plaster is to be used, as the plaster adheres much more firmly when the skin is free from any oily substance. His results, as far as early healing of and absence of infection are concerned, have been most satisfactory, and include the treatment of all classes of wounds. Of course, the inflammable nature of the gasoline must not be forgotten.

A DECINORMAL SALT SOLUTION. A decinormal salt solution is thus explained in the *Medical Record:* A normal solution in volumetric chemistry is a solution containing in 1000 c.c. an amount of the active constituent just sufficient to combine with or replace 1 gramme of hydrogen. In the case of sodium chloride this amount is 58.37 grammes; hence a normal salt solution is one containing 58.37 grammes to the litre of water. A solution one-tenth of this strength (a decinormal solution) contains 5.837 grammes to the litre of water, which is just about the strength of the saline solution used for venous infusion.

EPICARIN. Epicarin is a condensation product of cresotin acid and betanaphthol, and represents an acid which is capable of forming easily soluble neutral salts, differing in this respect from betanaphthol, which forms only alkaline (caustic) phenolates. This property serves to explain the comparative innocuousness of epicarin, since, according to Dresse, a fish when placed in a $\frac{1}{16}$ per cent. solution of betanaphthol became motionless in twenty seconds, whereas this effect developed only after three minutes in a solution of epicarin of $\frac{1}{4}$ per cent., viz., four times as strong. Doses of 0.2 gramme per os were well tolerated by rabbits without the occurrence of general symptoms of poisoning or the presence of albumin in the urine. The greater portion of the product could be recovered from the urine by shaking with ether. As regards bacteriological examination, experiments in Dresse's laboratory showed an almost complete cessation of yeast fermentation and a destruction of the staphylococcus after an hour and a half. Epicarin has been used with good results in chronic eczema, scabies, prurigo, herpes tonsurans, etc.

TREATMENT OF EQUINE MANGE. Of the various forms of mange I will simply state that they have been prevalent in Edinburgh for some time. In many cases both the sarcoptic and psoroptic mites have been found. The symbiotic, affecting the legs, is always with us.

We found a very simple treatment to be very successful. Dress the body all over with any oil, train-oil, forty parts ; sulphur, one part. Wash off at the end of a fortnight, and dress again. Very few cases require a third dressing, and in three weeks they were fit to be discharged. By watching carefully for the slightest symptom of itchiness, isolating the horse, dressing him, and thoroughly washing the harness with water, soap, and Jeyes fluid (crude creolin), we were enabled to prevent the spread of the disease in a very large stud. — PROFESSOR W. WILLIAMS, in the *Veterinary Journal.*

URTICARIA. The next skin disease to which I wish to refer is "urticaria," surfeit, or nettlerash. Like many other diseases, this is not so common now as it used to be, due undoubtedly to the more careful feeding and management of horses. The symptoms are manifested very suddenly. There may or may not be a preceding pruritus ; and the lesions characteristic of the disease are elevations of the skin, exactly resembling those produced by the sting of the nettle (urtica, a nettle). Now this disease is due to reflex irritation, arising from some disturbance of the digestive tract, and the formation of some excretory product, some say excess of urea.

In many instances the symptoms disappear very quickly, but I have seen cases most obstinate in their nature.

Treatment. Aperients, some soothing dressing to the skin, and in my experience an ounce of Scheele's prussic acid in about two quarts of water applied to the skin gives rapid relief. In chronic cases the origin must be carefully considered. Arsenic is recommended by some after aperients. I must say that I have been greatly disappointed with arsenic, and have substituted iod. pot. and colchicum, or, if there be debility, iron, bitters, and colchicum.—*Ibid.*

IMMUNITY OF LOWER ANIMALS. Prof. Metchnikoff (*Lancet*) has recently shown that the crocodile is almost entirely proof against tetanus. It is also known that in the crocodile it is impossible to produce a rise of temperature. The curious fact is also pointed out that mushrooms and moles, as well as bacteria, act upon toxins, converting them into vaccines, and without producing antitoxin. The invertebrates do not produce antitoxins to any extent.

PERFECT health is that condition of the body when digestion is so perfect that the physiological balance between the destruction and construction that goes on ceaselessly in the cell-life is daily kept normal.

DETECTION OF SALICYLIC ACID IN MILK. Since it has lately been pointed out by Langkopf that the presence of citric acid interferes with the color reaction between salicylic acid and ferric chloride, Suess (*Pharm. Centralb.*) has investigated how far this is true in the case of milk, which naturally contains 0.17 to 0.2 per cent. of citric acid. He finds that the color reaction is visible when the clear serum of the milk in question is caused to drop through a layer of ether 50 c.c. in thickness, allowing the ether, after separation, to evaporate, and then adding to the residue one or two drops of dilute ferric chloride solution. In this manner he has clearly detected as little as 0.005 gramme of salicylic acid in 100 c c. of milk.

SODIUM BIFLUORIDE FOR HISTOLOGICAL PREPARATIONS. Marpmann (*Phar. Zeit.*) finds sodium bifluoride ($HNaF_{12}$) excellent for preserving histological, microscopical, or botanical specimens, preferring it to formaldehyde or mercuric chloride, because not poisonous in dilute solutions. It is without effect upon gelatin and the colors of plants. The author employs the following solution for "fixing" the lower organisms: Sodium fluoride, 0.5; sodium bifluoride, 2.0; water, 100. For animal tissue a 5 per cent. solution of sodium bifluoride is recommended. Snakes, etc., preserved their various variegated colors very well in the following solution: Sodium bifluoride, 5; glycerin, 50; alcohol, 100; water, 400. For preserving the organs a 10 per cent. aqueous solution of sodium chloride which contains 1.65 per cent. of sodium fluoride is recommended. Glands and brain substances are hardened by immersion for three or four days in a mixture of equal parts of Müller's fluid and water which contains 5 per cent. of sodium fluoride and 5 per cent. of a 40 per cent. formaldehyde solution.

HÆMOSTATIC ACTION OF GELATIN. According to the *New York Medical Times* favorable results have been obtained in inoperable cases of aneurisms by the injection of gelatin. The operation or treatment is not devoid of risk. A 5 per cent. or a 10 per cent. solution of dry gelatin in distilled water, to which is added 2 per cent. of chloride of calcium, has a remarkable hæmostatic action when applied locally.

DANGER IN SPINAL ANÆSTHESIA. Already reports of sudden deaths following this new operation are beginning to appear in the columns of the medical press. Gumprecht reports two cases of sudden death in his own practice, and refers to fifteen other cases where death occurred suddenly following the production of spinal anæsthesia.

HYPODERMATIC INJECTION OF COCAINE quickly relieves the intense pain of bee and wasp stings.

IT is said that permanganate of potash in the proportion of half a grain to a quart of water will render nux vomica (also strychnine) taken in poisonous doses a harmless compound.

IF there is not sufficient time to disinfect the operative field in the proper manner a thorough soaking with a 1 : 200 solution of mercuric chloride will often answer the purpose.

DEPARTMENT OF SURGERY.

By W. E. A. Wyman, M.D.V., V.S.,
BURLINGTON, WIS.

J. A. Sloan, B.Sc., M.D.V.,
SAN FRANCISCO, CAL.

Robert Jay, M.D.V.,
WEST LIBERTY, IA.

Hoof Diseases.

(Continued from page 686.)

To appreciate thoroughly the various pathological states and properly treat them, at least, a fair working knowledge of the anatomo-histological arrangements of the horn-producing parts is essential. The continuation of the external skin enclosed by the hoof is termed pododerm; it secretes the hoof. In it three layers are recognized: 1. A modified epidermis. 2. Cutis. 3. Subcutis.

The modified epidermis is represented by the horny capsule, the hoof.

The cutis or pododerm exhibits: 1. The perioplic band. 2. Coronary band. 3. Podophyllous tissue. 4. Fleshy sole. 5. Fleshy frog.

The perioplic band lies between the external skin and coronary band. It is of granular, velvety appearance; its surface is densely studded with delicate villi. Its physiological function consists in the formation of the periople or outer protective layer.

The coronary band lies between the perioplic band and sensitive laminæ; at the heels it turns in, losing itself in the fleshy sole or meeting the other half about at the point of the frog. Its surface also has a granular, velvety look, due to many fine papillæ, equipped with the secondary lamellæ, same as those of the fleshy sole. Its physiological function is the formation of the main mass of the hoof—the middle layer and the bars. Next comes the fleshy wall, rich in bloodvessels, covering the anterior face of the os pedis and lower portion of the lateral cartilages; turning in at the heels it runs forward between the bars, producing part of the coronary band and fleshy sole, forming near the middle of the sole the bar laminæ.

There is no subcutis where the fleshy wall covers the os pedis, both being directly and intimately united. In contrast to other parts the podophyllous tissue is made up of parallel leaves running from above to below, separated by grooves into which the horny laminæ fit. As the fleshy leaves merge into the sole, their laminated appearance loses itself, and papillæ are seen instead. Each fleshy leaf shows collateral leaves, designated respectively as primary and secondary laminæ. The physiological function of the fleshy wall lies in the production of the keraphyllous tissue, uniting the pododerm and horny wall.

The fleshy sole covers the solar surface of the os pedis, replacing, so to speak, the periosteum. Its velvety appearance also is due to villi of similar size and make-up as those of the coronary band. It forms the horny sole.

The fleshy frog, covering the plantar cushion, exhibits shorter and thinner villi with collateral lamellæ. Its function is the formation of the horny frog.

The extent of an at least modified subcutis is very limited; underneath the coronary band it braces the many bloodvessels; under the upper margin of the fleshy wall it covers the extensor pedis tendon and lateral cartilages, being represented by the plantar cushion below.

This coarse, anatomical sketch having been deemed necessary, some of the leading histological features of the cutis are desirable.

A cross section of the fleshy wall, according to Möller, exhibits the periosteal layer (stratum periostale), vascular layer (stratum vasculosum), leaf-like layer (stratum phyllodes), and rete Malpighii.

The innermost layer of the stratum periostale is only represented where the podophyllous tissue is in immediate contact with the os pedis and lateral cartilages. Right here it is also termed parachondrial layer (stratum parachondrale). The periosteal layer, which is at the same time the periosteum of the os pedis, has primarily a connective tissue composition, exhibiting less vessels and nerves than the vascular layer. Next to it, composed of connective tissue and elastic fibres with many nerves, bloodvessels, and lymph-vessels, comes the vascular layer. Above it the phylloid layer with its many laminæ; each lamina, as previously stated, has numerous collateral leaves, the whole being made up of strong connective tissue enclosing the bloodvessels.

The rete Malpighii, composed of cells only, and forming the horn cells, covers the entire surface of the phylloid layer.

The fleshy sole, as already stated, exhibits villi, sections showing them to be of similar structure as the laminæ of the fleshy wall. The same refers to the coronary band, but the periosteal layer is absent, being replaced by a subcutis.

The fleshy frog also has no periosteal layer; the vascular layer is less vascular, while an intimate union exists between it and the plantar cushion. It is also the only part of the pododerm containing sweat glands, first described by Ercolani, 1861. These glands are also capable of producing an oily substance. (Lungwitz, Eberlein, Möller.)

Wounds. Wounds of the pododerm, same as in other parts, may be contused, incised, lacerated, etc.; superficial or deep, aseptic, infected, bleeding, granulating, and so on, while thermic and chemical agents may finally exert detrimental influences.

According to locality, the coronary band, podophyllous tissue, velvety tissue of sole or frog, may be involved. Contusions and punctures of the pododerm are most frequently met. During slippery weather, wounds about the coronary region from sharp shoes are common. Horses which interfere on account of faulty positions of their legs (toe-out, for instance), injure that locality; the region of the heels is often bruised and incised in those which overreach or forge. Finally, kickers may drive splinters into these parts, and animals working about the public dumping places are mainly exposed to cuts from glass, tin cans, wire, etc.

The fleshy wall is exposed to nail-pricks (in shoeing), while penetrating seams of the horny box may pinch the sensitive laminæ. Excessive paring of so-called corns often leads to trouble.

The fleshy sole and frog are mainly injured by punctures and bruises from nails, stones, glass, etc. Burns from acids, alkalies, the actions of fire and cold are also possibilities.

The ordinary symptoms, such as hemorrhage, gaping of wounds, necessarily depend on the parts involved. Thus wounds of the coronary band, unless the diameter of the offending agent is small, bleed freely, especially when weight is borne by the foot, stopping more or less as frog pressure is removed. The presence of a rich nerve-supply explains the decided pain accompanying wounds of the pododerm, increased by subsequent inflammation and expressed by a supporting leg lameness plus increased pulsation in the arterial blood-supply to the parts. Depending on the extent of the lesion decrease or even suspension of appetite with slight aseptic or even infectious fever may be present.

As a rule, no difficulties are experienced in making a diagnosis. The history of the case, increased pulsation of the digital arteries, supporting leg lameness, pain on palpation, if necessary employing the searching knife to locate the point of entrance, as the horny cells by swelling hide it.

The greatest difficulty is found in estimating the depth of the fresh wound, as but few animals will permit the proper use of the sound on account of the terrible pain; to be sure, probing in such cases is of doubtful value when such vital parts as the neighborhood of the perforans tendon, lateral cartilage, plantar cushion, or pedal articulation are involved, simply by reason of a possible infection. Such wounds almost invariably at the very outset are infected, and the fact that such a wound healed by first intention is no proof of a non-infection, but rather explained by the cleansing influence of a free hemorrhage. Therefore, a doubtful prognosis is generally indicated, as tetanus, malignant œdema, the location of the wound and complications, as quittors, necrosis of the perforans tendon, suppurating pododermatitis, etc., are to be thought of.

Antiseptic wound treatment is the *conditio sine qua non.* After the edges of the wound have been trimmed, foreign bodies removed, the parts are thoroughly irrigated with a 1 per cent. solution of formalin or 1 per cent. solution of corrosive sublimate; when gaping is marked a few stitches will materially shorten the period of healing. If possible, a dressing is applied which is kept moist with warm antiseptics, the writer preferring 1 per cent. solution of formalin or 1 per cent. solution of corrosive sublimate.

Unless the animal shows pain and fever (above 101.5° to 102° F.) it is well to leave the warm, moist dressing on for two or three days. In those cases where necrosis of tissue is reasonably expected (bruised wounds) the warm, moist dressing, changed one or more times daily, according to the case, is continued until the necrosed parts are expelled; in this way demarcation is favorably influenced. In cases where no visible necrosis is present, in those where no necrosis is expected, and, finally, in those where the necrotic zones have been removed, my favorite dressing consists of Merck's tannoform changed daily until the parts are dry and covered with a brown coat, which is left undisturbed. Should granulations become luxuriant a pressure dressing of equal parts of alum and tannoform is applied. Wherever pus is freely discharged you will find that a saturated solution of tannoform in alcohol injected into the canal or applied to the pus-producing surface but a few times will surprise you. The writer can safely say that Merck's tannoform is of great value both externally and internally. Use it, get acquainted with it, study its innumerable possibilities, ask no impossibilities, and you will soon learn it deserves your full confidence, as it is reliable and cheap. Animals which have to go to work before cicatrization is complete are given a permanent pix liquida bandage.

Wounds which penetrate into the sole or frog must be given free drainage by a free removal of the horny sole or frog. This is followed by a disinfection of a 1 per cent. formalin solution, and this by the alcohol-tannoform solution. A protective warm and moist packing (I usually take cotton-waste) is now put on, and the animal seen in twenty-four to forty-eight hours, as the case may be. Should the owner insist on working the animal at once the ordinary splint dressing is applied to the shoe.

When the pain increases, showing that the pathological lesions are progressing, the writer usually confines the animal at once, splits the infected tract, and, if necessary, curettes it. This is followed by a formalin irrigation, 1 per cent., and wherever practicable a tannoform bougie is introduced every other to every third day. Merck gives the following formula for five bougies, two inches long, one-fifth to three-fifth inches thick: Tannoform, 75 grains; cocoa butter, 375 grains; castor oil, q. s.—M. Of course, absolute drainage is essential. An occasional hot antiseptic foot bath is a valuable therapeutic adjunct.

Among the visitors to the National Horseshow in Madison Square Garden in November were to be noted Drs. R. S. Huidekoper, of Washington, D.C.; Wm. Jakeman, of Halifax, N. S.; H. D. Gill and M. O. M. Knott, of New York City, N. Y.; W. Horace Hoskins, of Philadelphia, Pa.; Wm. Herbert Lowe, of Paterson, N. J., and T. Earle Budd, of Orange, N. J.

Dr. T. A. Geddes, of the Bureau of Animal Industry, has been sent to England and the Continent, where he will apply the tuberculin-test to all cattle and breeding stock destined for shipment to the States. This will save much annoyance incidental to shipping, and prevent the reshipment of those condemned on examination on this side.

Dr. G. Howard Davison, of Millbrook, N. Y., was the winner of the first prize with his Shropshire sheep at the International Live-stock Exposition at Chicago in November.

Dr. E. A. A. Grange has severed his connection with the Humane Society of New York, and is temporarily caring for the practice of Dr. H. A. Paget, of Scranton, Pa.

REPORTS OF CASES.

I. RETENTION OF FŒTAL SKELETON. II. PAINT-POISONING.[1]

By W. H. Welch, M.D.C.,
LEXINGTON, ILL.

Case I.—Retention of Fœtal Skeleton. The subject was a registered Scotch collie bitch, four years of age. She was presented for the operation of ovariotomy, with the following history:

Previously, at the ages of one and two years, she had given birth to two healthy litters of puppies. The first litter numbered five, while the last consisted of eight, all strong and vigorous. Nothing unusual at this time was noticed, but before the puppies were weaned she became greatly emaciated, which, to the owner's mind, was readily accounted for by the excessive drain upon her system, as a consequence of nursing her young. This emaciated condition, a rough coat, together with a very capricious appetite and fits of vomiting, were maintained for a period of perhaps a year.

I was at this time consulted in regard to her, and as the owner was the proprietor of quite a large kennel, which subsisted almost entirely on baked oatmeal-mush for a ration, the case was considered one of indigestion. The administration of tonics, together with a complete change of diet, soon resulted in restoring her to perfect health, with the exception that during the two years she did not come in heat.

Shortly after she was disposed of to a farmer and sheep-raiser, who, desiring to be rid of the annoyance of rutting, presented her for operation.

The patient, after a twenty-four hours' fast, is securely muzzled and held by two assistants on a clean oil-cloth. The hair is clipped along the median line, and the field of operation thoroughly washed with carbolized water. An incision is made through skin and linea alba, beginning close to the umbilicus and extending backward an inch in length. Then, puncturing through the peritoneum, search for the Fallopian tubes begins. Astonished at not being able to locate the same, the incision is extended backward until it is discovered, and, drawing out the right ovary, it is removed. Now, following back the right cornua, with a view of locating the left, the uterus is reached, when it is noticed that it is much smaller than normal, being indurated and firmly contracted upon some hard substance within its walls. A probe passed through the vagina into the os uteri determines it to be of a calcareous nature. Proceeding up the left cornua, a similar substance is met within an inch or so from the ovary.

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[1] Read before the Illinois State Veterinary Medical Association, November 16, 1900.

Removal of the remaining ovary, together with the entire uterus, was now decided upon, and easily accomplished by means of the écraseur.

Examination showed that within the left Fallopian tube were the cranial bones of a fœtus, while the uterus proper contained the remaining bones of the skeleton, and was so firmly contracted on them as to be diminished to about one-half its natural size.

During the night, in spite of the administration of proper stimulants, the patient succumbed from the effects of the operation. No doubt the extent of the incision through the parietes, which was at least two inches in length, aided such result. Could the existing condition have been known, and the incision have been made at a point posterior, or the operation been performed through the flank, it is barely possible that it might have resulted successfully.

The case is interesting as illustrating tubal pregnancy, with decomposition and disintegration of the softer tissues and retention of the bony skeleton for a period of two years, with the animal apparently enjoying good health.

CASE II.—PAINT-POISONING. On May 18, 1898, I was called to the country to see some milch-cows that were said to be scouring and very sick.

Upon arrival at the farm, I found two of the three cows owned by the farmer scouring very profusely. Both were in a recumbent position, very weak, and when compelled to rise, which they did with great reluctance, staggered and seemed to have but little control of the organs of locomotion. Pulse nearly imperceptible, and greatly increased in frequency. Temperature a trifle subnormal. The mucous membranes of eyes injected and eyes weeping. Exhibited some pain, as evidenced by a grunt accompanying each respiration.

I was informed by the owner that the first symptom of ailment was on the previous evening, when, instead of giving their usual supply of milk, the lacteal secretion was completely suppressed.

In the morning it was seen that they had been scouring profusely through the night.

About a week previous to this they had been changed from one pasture into an adjoining one. A careful survey of both pastures and the roadside, to which they had access upon two different occasions, failed to offer a satisfactory theory. The water which they were drinking was from the same tank and well.

A few days previous to the commencement of the trouble one of them was seen to drink from an old gallon paint-keg, which had been thrown on the wood-pile, and into which the water from a recent rain had fallen. This had been at once removed, and nothing more thought of regarding it. Upon examination it was found to contain about an inch of white lead, covered with linseed oil, but which now appeared perfectly dry. Upon being questioned as to this being a probable cause, the opinion was ventured that it was hardly probable, as the symptoms did not appear to bear out that theory.

They were placed on stimulants combined with opiates, but upon the following morning, as the diarrhœa still continued and they appeared no better, consultation was asked for, and Dr. Alverson was summoned.

After receiving a history of the cases and making a careful examination of the patients, he concurred in the opinion that it was due to the ingestion of some substance the nature of which we were unable to decide.

The following night one of the two died. A post-mortem held the next morning revealed extensive inflammation of all four divisions of the stomach, together with slight enteritis. Nothing, however, was disclosed as to the etiology.

On May 21st, however, imagine the owner's surprise when on going to the stable he found both his remaining cows lying dead, one of which had given no notice of illness.

Dr. Alverson was again summoned, and together a post-mortem was held on each of the two cows. Each showed about the same general inflammation that No. 1 exhibited, but the contents of the stomach of No. 3 were dry and impacted. In each of them among the ingesta were found particles of dried paint consumed in drinking from the keg.

The Kansas City Veterinary College opened its winter session on September 14, 1900, with the largest attendance in the history of the college.

CORRESPONDENCE.

VETERINARY EDUCATION.

EDITOR JOURNAL OF COMPARATIVE MEDICINE, ETC.

SIR: The first veterinary school in this country was established in Boston nearly a half-century ago by Dr. George Dadd, and the veterinarians of New England have taken a keen interest in the progress of veterinary education from that time to this. We claim for this section the honor of having established the first three-year veterinary school in America, and of having led in work pertaining to the suppression of the animal diseases, of which foot-and-mouth disease, pleuro-pneumonia, glanders, and tuberculosis are notable examples.

Unfortunately, our leading position has received what may be a serious setback by the action of the Corporation of Harvard College in voting that no new students shall be received by the veterinary school. This action has caused a great deal of serious thought by veterinarians interested in the progress of their profession, and I should like to record the views of one who has devoted some attention to the education of men who wish to become veterinarians, and has observed, if he has had little experience in this line. I shall try to be brief, and while what I write is probably influenced to a certain extent by the change that has occurred in our sole New England school, my opinions are based upon prolonged observation. I should add that I am not and never have been connected in any way with Harvard University, and while I am not in full sympathy with all of the details of the administration of the Harvard Veterinary School, I recognize the vast impetus that this school has given to veterinary education not only in New England, but in all parts of the United States.

The Harvard Veterinary School is closed for want of public support. It is a sad reflection upon the value of veterinary work and upon the standing of the veterinary profession that in the richest part of the country and with the backing of the most famous American university, it has not been possible to secure support enough to keep the school going on an adequate basis. It is, however, to the credit of the University that it has refused to continue to conduct a school that does not attain to the highest standard of veterinary education in this country. The original mistake that was made appears to have been based on the supposition that a veterinary school required no equipment in addition to that of a good medical school excepting a hospital, a farriery, and a dissecting-room. Moreover, it was thought that a large part of the teaching of veterinary students could be conducted by professors in the school of medicine. The Veterinary School had no professors who were employed to devote all of their time to its interests. It has always been necessary for the teachers to divide their time between their classes and their outside pot-boiling work of a public or private nature. So the Veterinary School has not been able to secure the best energies of even one man; whereas, it should have had the undivided interest of at least five or six.

We have but to recall the history of the early days of the veterinary schools to find complete support for these views.

Shortly after the founding of the first veterinary school in France, in 1762, similar institutions were erected in nearly all civilized countries. There appeared to be at that time a very general impression that the work of the veterinarian was but a subordinate kind of medical practice, so most of the teaching of the early days was given into the hands of physicians and surgeons, some of whom had received special instruction in the veterinary schools of France, and some of whom were taken directly from the proper work of the medical profession. The work of the veterinary schools during the first half-century of their existence was most discouraging, and it was not until there appeared a new generation of veterinarians who had been educated by veterinarians that their science took its proper place in the economy of nations. Of course, it is true that some of the greatest steps in the development of veterinary education were taken by men who were physicians; but these men were not practising physicians nor teachers in medical schools, they were physicians or surgeons who were also veterinarians, as Wolstein, who established the veterinary school in Vienna, and, indeed, was the founder of scientific veterinary work in Germany. While Wolstein was originally a physician, he later devoted all of his time to veterinary work, and deserves to rank as the most eminent veterinarian of his day.

At present the successful veterinary schools of the world are under the direction of veterinarians, and their students are taught by veterinarians who devote all their time to this work. A little consideration will show that success cannot be achieved in any other way. As Dr. Reynolds, of Minnesota, has said, "It would be as reasonable to put carpentry work under the supervision of blacksmiths and blacksmithing under the supervision of carpenters as to subject veterinary work to medical control."

Physicians who teach in medical colleges and are also asked to instruct veterinary students do not and cannot furnish the detailed special instruction and point out the practical applications that the veterinarian must have. Take the subject of physiology, for example. A physiologist teaching in a medical school will say that the principles of physiology are of universal application, and that his course of physiology is as good for a veterinarian as it is for a medical student. Probably, if the veterinary student were intending to become a specialist in physiology, a first-class course in a good medical school would serve for a foundation. But the practising veterinarian ought to be able, and if he is to succeed fully he must be able, to apply his physiology in a thousand ways that do not come before the physician, and that are entirely unknown to the medical professor of physiology. The veterinarian must know about the respiratory mechanism and needs of each species of domestic animals; he must know about the nutritive needs of animals kept for different purposes and doing different kinds of work; he must know how to utilize to the best advantage the common foodstuffs of the farm for growing calves for beef or milk, for producing eggs, and for sustaining the draught-horse and the trotter. The veterinarian must very thoroughly understand the physiology of the reproductive processes of all kinds of animals, the laws of heredity, and the influences and conditions that may be applied to improve the offspring. These are but a very few of the many points that would require a volume for their appropriate discussion. As much could be said in favor of separate special courses by and for veterinarians in pathology, bacteriology, pharmacology, physiological chemistry, histology, etc.

The need for separate instruction to veterinary students in each of these subjects may not at first be clear to one who is not a veterinarian; but when we recall that the subject of pathology, for example, has developed to such an extent that it is now divided into many specialties, and the appropriate consideration of any one of these specialties requires work for a lifetime, we can readily understand that the veterinary student cannot possibly obtain during his brief college course as much special pathology of animals as he ought to have, even if all of the time that he can devote to pathology is given to the study of the special parts that he absolutely must know; then we can realize the urgent need for special application and special instruction.

A great mistake has been made in denominating veterinary schools as schools of veterinary medicine. This is usually interpreted to mean that veterinary science is a branch of medicine. Nothing could be further from the truth. Upon this false conception should be placed a large share of the responsibility for the tardy development of veterinary education in this country. It is true that the veterinary sciences draw largely upon the medical sciences, or, at least, the sciences that are usually so termed. As a matter of fact—and this thought has been partly developed by Dr. Theobald Smith—veterinary schools are schools of applied biology, and are not more dependent upon schools of medicine than are other schools for biological instruction. If a veterinary school must be attached to some other institution, it is very much more logical, and history shows that it is much more successful, to combine veterinary science and agriculture than it is to combine veterinary science and medicine. The veterinarian is not a second-rate "doctor," nor does he belong to a subordinate branch of the medical profession. He is the natural and highest authority on questions pertaining to animal husbandry. Most of the great questions of animal husbandry and of veterinary science are not *medical* questions at all. As Dr. Huidekoper has said, "the chief use of the veterinarian in the army is not that of a tinkerer to treat colic and sew up wounds;" not at all. That veterinarian can be most valuable to the army and to the State and to the nation who is best prepared to take a comprehensive view of his science, and so advise in regard to the breeding, the feeding, and the care of animals that they will be made stronger to endure work and resist disease, and in this way lengthen the average life, or productivity, or lessen the cost of rearing and maintenance a great deal more than these could be improved by the work of the veterinarian who gets his training in a branch of a medical school and who must regard tinkering as the chief end of his profession. Dr. Pearson has tried, although he has not succeeded fully, to express this thought by the use of the title "animal engineer."

The day of the veterinary branch of a medical school, or of the veterinary school devoted almost exclusively to medical teaching, was past before the Harvard School of Veterinary Medicine was opened. It is a pity that Harvard University could not have seen this, and thus avoided its present embarrassment; but this experience has at least one great advantage. It shows that the veterinary school comprises something that is entirely aside, apart from, and beyond veterinary *medicine*. It shows that a school of veterinary *medicine* will not succeed, even when attached to the best medical school in the country and backed by the greatest University of the land. It is to be hoped that Harvard University will now establish a school of veterinary *science* wherein instruction will be afforded in everything that pertains to the domestic animals. Such a school should have as part of its equipment a farm to be used as a breeding-station. This part of the equipment of a veterinary school is now recognized as indispensable, and the most enlightened members of the veterinary profession are on record as recognizing the indispensable need for this equipment in a resolution adopted unanimously at the last International Veterinary Congress (Baden-Baden, 1899).

The subject of physiology should be studied practically upon all domestic animals. This does not mean vivisection. The instruction in physiology and in breeds and breeding and in animal husbandry and zoötechnics should be at least as complete as it is in the best agricultural college in the country.

This new institution should have sufficient resources to justify the employment of the entire time of five or six members of the teaching staff. An endowment of at least $500,000 is necessary to the maintenance of a creditable veterinary school. Here is an opportunity for a philanthropist. YANKEE.

ON the morning of November 13th the central or main laboratories of bacteriology and histology of the New York State Veterinary College were burned out, with all their valuable contents.

Fortunately, the research laboratories of the same department, and situated on the same floor, were saved. The whole of the basement with the first and second floors, including museum, offices, lecture-room, and laboratories of physiology, materia medica, and pharmacy escaped. The east wing, ninety feet long, with amphitheatre, dissecting-room, preparing-room, locker-room, laboratories, and small animal-house, remained unscathed, as did also the separate buildings, the mortuary, bone-room, operating-room, house of stud groom, and three clinical buildings.

Work was begun at once on the burnt portion, and by the 17th it had been cleared and roofed in, and from the 19th work will go on fully in all departments as before. The first floor of the museum has been fitted up for a laboratory of histology and embryology, and a periodical-room, the spaces between the museum cases being availed of; the former periodical-room and part of the second floor of the museum are devoted to bacteriology and pathology, while in both departments the research laboratories are still available.

The short course for practitioners advertised to commence January 3d will be carried out as formerly provided for, with ample facilities.

EDITORIALS.

VETERINARY EDUCATION.

UNDER the heading "Correspondence" we publish in this issue a communication in relation to the needs and tendencies of veterinary education. There is no reason, with the experience of one hundred and thirty-eight years since the founding of the first veterinary school to guide us, why we should repeat the errors that have been made. There is no reason why veterinary schools in this country should have their development retarded and their usefulness impaired by conditions that were found in Europe a century ago to have a stunting and unwholesome effect. It is now time to realize, as our correspondent says, that the successful veterinary school is not a branch of a medical school, and that it should be a school of veterinary science rather than a school of veterinary medicine.

No school can furnish a complete education in any science or art. All that schools can do for students is to teach principles, so much detail as is necessary to the proper understanding and application of these principles, and then show the student how to apply his knowledge and how and where he may gain more. This additional learning, that is built upon the foundation the school has laid, and in the direction the school has pointed out, is the true education ; it is this that is most useful to mankind.

It is evident that our Yankee friend is strongly of the opinion that the direction of veterinary education should be more to the animal husbandry side and less toward medicine. He states his case strongly, and there is much to say in favor of his view. But still it should be remembered that the veterinarian must always be an expert on the diseases of animals, and that this is his most important field. It is here that his greatest work has been accomplished and that his greatest usefulness lies. It is undeniably true, however, that many veterinarians are not in a position to render as useful service as they should, for the reason that the foundation of their technical training was laid within too narrow lines and without sufficient inclination toward practical animal husbandry.

While veterinarians cannot be too well trained in comparative medicine, they should be taught by men who are versed in comparative medicine in the broadest sense, and who understand how the knowledge they possess can best be applied to veterinary problems, and not by men who have only the narrower training of physicians.

Now and then a veterinary school is so fortunate as to have as a member of its Faculty a physician who has a real interest in the work of his veterinary classes, and who not only devotes much thought and time to them, but also makes material contributions to the general knowledge of his subject. Unfortunately, such men are rare—so, broadly speaking, for development in the veterinary sciences we must depend on veterinarians. Does not this mean that the teaching of veterinary students should, so far as possible, be entrusted to veterinarians?

If the union of veterinary and medical schools is logical, then the union of the public administrative work of the veterinarian and the physician is logical. If veterinary and medical schools should be attached to each other, then public administrative work along veterinary lines should be under the jurisdiction of boards of health. Cattle commissions, livestock sanitary boards, State veterinarians, and the Bureau of Animal Industry should then be under or associated with health boards instead of departments of agriculture. But this management would not be satisfactory nor successful, for proof of which witness the organization of such work in all States and countries.

The veterinary schools of France are under the Ministry of War; those of Germany are under the Ministry of Agriculture. The medical schools of these countries are under the Ministry of Education. The veterinary school in London is supported in part by the Royal Agricultural Society, and those of Scotland are under the patronage of the Highland and Agricultural Society.

There can be no doubt that the successful *and useful* veterinarians are, first, lovers and connoisseurs of animals; and, second, veterinary physiologists, pathologists, therapeutists, etc. The knowledge of and feeling for animals is an essential preliminary, and should be trained and developed as much as possible throughout the entire veterinary course. Hence, the equipment and teaching staff of a veterinary school must be much more than of a mere school of comparative medicine, and must embrace facilities for teaching the principles and practice of animal husbandry.

It must not be inferred, because the work of the veterinarian touches that of the physician here and there, that the veterinarian is exclusively a comparative pathologist, and that his work is a subordinate kind of medical practice. Should this view obtain, it were time to divorce veterinary science from the thraldom of the medical schools.

As to the situation at Harvard, we sincerely hope that the veterinary school may gain the support it deserves and reorganize on broad, modern lines.

HARVARD VETERINARY DEPARTMENT'S PERIL.

THE college year of 1900–01 had hardly reached its first quarter mark when the news reached us of a determination of the Board of Governors of Harvard College to close the Department of Veterinary Medicine. Such a decision at this time seems almost beyond comprehension, for with the better conditions prevailing in the animal industry world there has followed an exceptional increase in the classes of every school in North America. With the field of the automobile well defined and the higher and better place of the horse fixed, it would seem, indeed, a strange period for such a decision. With the veterinary sanitary control work of our land extending over a wider and better field, and the unsupplied demand of our government for more assistance, there should have been no time so auspicious as the opening college year, for the past ten years at least. But such is the decision, unless there shall be given substantial aid in the way of endowing this department.

After many years of earnest college work, the growth of an alumni body of considerable size, this department, whose help and aid should have filled many a breach, and whose strong arm of support should have contributed money sufficient to carry on the good work, there would seem to be little appreciation of the work of the veterinarian in the New England States when such an institution fails to receive sufficient of an endowment fund to perpetuate its work. With large and varied interests in the animal world, from sentiment in humane societies, from sport in the racing world, from pleasure in the driving classes, from the health seekers among the riding classes, from the wealth seekers in the industrial fields of the employment of horses, from the value of protective measures in the food-supply derived from animals, for the safeguards vouchsafed by veterinarians in the inspection of animals subject to diseases transmissible to man, and in many other ways enriching and ennobling a community, there would seem an utter forgetfulness of the value of such an institution. If it cannot grow stronger and better; if it cannot keep pace with the advancement of laboratory work and special fields of investigation; if its sphere of usefulness in higher education has reached its zenith, and there are no greater victories to achieve, then it would seem wise to close its doors rather than die by starvation.

We sincerely trust that the wealth of the New England States will not be so wholly forgetful of the grave responsibilities wealth incurs as to leave this college without sustenance at a time when many are contemplating the creation of new institutions, while well-equipped ones exist without the necessary means of maintenance. Wake up, down East! and save this institution, and let no such blot of shame rest upon you as a broad, liberal, and educated community of people.

NEW JERSEY'S OPPORTUNITY.

WITH New York upon one side and Pennsylvania upon the other, the "Garden State" has had an exhibition of unexcelled progress in veterinary association work. Not lacking in numbers nor in individual merit of her veterinary representatives, that State has wasted her powers in the past because there lacked a single leader among her numbers who could create a common worshipping ground where all her various devotees of the profession might erect a common altar of veterinary progress before which all might worship. There is a strange fascination innate in the average man that he must con the same pages as others, learn the same lessons by personal experiences, and ever be forgetful of history repeating itself. So with New Jersey's profession; she had to learn through her own trying experiences that "united, we stand; divided, we fall." She has learned well the lesson, she has lost much by the experience; but her ranks are now closed up, and there will be a common enemy to fight every barrier to veterinary progress and to wipe away every stumbling-block to future good work in higher veterinary education and better association work. Veterinary sanitary legislation and every field of veterinary advancement will feel the impulse of a strong force from her many able veterinary leaders. She will demonstrate at Atlantic City in September her strength and power. She will place in the forefront her wisest leaders, and she will grasp the one lacking opportunity to make her armor complete in her future battles in legislative halls, in municipal councils, in animal industry organizations, until there will mark a progress for the welfare of her people second to none in the United States. Let the Association meet in goodly numbers along her wonderful seashore front and give the needed impulse in this centre, such as has followed in the South, the West, the Northwest, and every other centre where the A. V. M. A. has assembled, and let New Jersey seize in the fullest sense all the good that flows therefrom. The Lowes, Dixons, Millers, Hawk, Lockwood, and many others equally well known as representative veterinarians of that State will fail in the sight of their confrères in sister States if they do not make this an epoch-making event in veterinary history in New Jersey. Let New York, Pennsylvania, and Maryland aid their colleagues in New Jersey, and the Atlantic City meeting will be a bright star in the galaxy of meetings that have crowned veterinary progress in the East with laurels worthy of the cause.

OUR SUCCESS IN THE HOUSE.

As we go to press with this number the success of Army Legislation seems assured. After a determined battle in the House, the discovery of traitors among those upon whom we depended, by a vote of 80 to 72, the army bill with the veterinary corps as a part of the same was passed. Those who so earnestly supported and carried it through the Senate last year are to-day as zealous in its support as ever, and time has only made them more fully realize its need and importance. While there are new faces in the Senate from several States, they come as new friends of the profession, and the great work of organization of its friends and supporters all over the land will prove the value of this plan of campaign.

We are glad to be able to announce that the fire at the New York State Veterinary College was not so serious as at first reported, and will not interfere with the progress of the college course. The losses, while serious, will not be beyond a prompt and complete restoration.

MARRIAGE.

At Middleburgh, Pa., November 15, 1900, Dr. Clinton F. Keiter, of Elizabethville, Pa., of the class of 1899, Veterinary Department, University of Pennsylvania, to Miss Laura A. Smith, daughter of Mr. and Mrs. James P. Smith.

PROMOTIONS OF VETERINARIANS IN THE BUREAU OF ANIMAL INDUSTRY.

The following are promotions of veterinarians in the Bureau of Animal Industry from September 1 to November 30, 1900:

Dr. A. M. Adams, Clarinda, Iowa,	from	$1200 to	$1400
Dr. F. W. Ainsworth, Pittsburg, Pa., placed in charge of station,	“	“	“
Dr. Boyd Baldwin, Chicago,	“	“	“
Dr. A. E. Behnke, inspector in charge at Milwaukee,	“	1400 to	1600
Dr. Tait Butler, transferred from Chicago and placed in charge at Cudahy, Wis.,	“	1200 to	1400
Dr. Thomas Castor, East Las Vegas, N. M.,	“	“	“
Dr. H. A. Christmann, Washington, D. C.,	“	“	“
Dr. W. Ross Cooper, Kansas City,	“	“	“
Dr. A. A. Holcombe, Chicago, promoted to travelling inspector,	“	“	“
Dr. Robert L. Kelly, East St. Louis, Ill.,	“	“	“
Dr. Peter I. Kershner, Manhattan, Kan.,	“	“	“
Dr. John A. Kiernan, Boston,	“	“	“
Dr. F. B. McCall, Chicago,	“	“	“
Dr. John P. O'Leary, Buffalo,	“	“	“
Dr. Harry D. Paxson, Fort Worth, Texas,	“	“	“
Dr. George W. Pope, Superintendent of Animal Quarantine Station at Garfield, N. J.,	“	1400 to	1600
Dr. Frank S. Tufts, Chicago,	“	1200 to	1400
Dr. Harry N. Waller, formerly inspector in charge at Pittsburg, transferred to the same position at New York, and promoted	“	1600 to	1800

Dr. T. A. Geddes, stationed in England as inspector of livestock for importation.

Dr. R. W. Hickman, formerly inspector in charge at New York, transferred to Washington and placed in charge of the Miscellaneous Division of the Bureau.

NEW PUBLICATIONS.

THE COLUMBIA CALENDAR.

The Columbia Calendar, issued by the Pope Manufacturing Company, of Hartford, Conn., has once again reached our desk for the year ushering in the new century. Always bright and sparkling with fresh thoughts and expressions from those best acquainted with the merits of their products, it fills a doubly useful place on one's desk as a daily reminder of one's engagements, etc.

PHYSICIANS' VISITING LIST.

It rarely falls to the lot of any one type of book to be published for so long a period as fifty years, yet this is just what has been the experience of the *Physicians' Visiting List*, published by Messrs. P. Blakiston's Son & Co., of Philadelphia. It is not to-day just like the one published fifty years ago, but it has grown in value and merit with each year, until those who have grown familiar with its usefulness would no more think of starting a new year without its assistance than they would go without a well-equipped medicine-chest for emergencies.

A. V. M. A.

THIRTY-SEVENTH ANNUAL CONVENTION, DETROIT, SEPTEMBER, 1900.

(Continued from page 641.)

THE Army Legislation Committee report was supplemented by an extended reference by Dr. R. S. Huidekoper to the work done and the direct opposition it had met with in the halls of Congress. The unjust and unfair criticisms of our profession were referred to, but he believed that they were largely due to utter ignorance of the advancement and growth of the profession in the last ten years, and that the special work this year of an educational character carried on all over the land through the profession would prove of very great value in the coming session of Congress. He stated his purpose of again reaching the officials of every State and local organization, with advice and information along the lines that would insure success at the next session. Dr. Hoskins followed with remarks very highly commending the leadership of Senator Kenney, of Delaware, on the floor of the Senate, and offering a hearty vote of thanks in recognition of his valued services, which was seconded and carried. Dr. Austin Peters followed in commendatory remarks of the earnest advocacy of our legislation by Senator Wolcott, of Colorado, to whom a very sincere vote of appreciation was extended. After some further remarks the appropriation of $250 to the Army Legislation Committee was adopted on recommendation of the Executive Committee.

The treasurer's report exhibited a very healthy condition of the finances of the company, showing receipts aggregating $1923.16 and expenditures of $1152.88, leaving a balance in bank of $771.92. One of the gratifying features of the treasurer's report was the large sums of money used by the Resident State Secretaries in their work of better organizing the profession in the several States for more efficient work in behalf of the profession. An increased balance of $470.10 over the preceding year, with very much larger expenses in certain directions, was reported.

Secretary Stewart, in a brief report, covered the work of that office for the year. The adoption of uniform stationery for all the officers and Resident State Secretaries had added much to the welfare of the Association. The gross collections for dues showed an increase of about $200 over the preceding year. He closed his report with the hope and a request that he be relieved from further services in the arduous post he had filled. Dr. Hoskins, in referring to the report and very efficient services rendered by Secretary Stewart, asked that a proposition upon the President's desk be taken up for consideration. The proposition recommended an increase of the Secretary's salary to three hundred dollars. It was signed by Drs. Reynolds, Winchester, Salmon, Clement, Pearson, Huidekoper, and Hoskins. On motion it was referred to the Executive Committee, and by them favorably approved and adopted at a subsequent session of the convention.

Dr. A. H. Baker, Chairman of the Committee on Intelligence and Education, made a short report on behalf of this committee, addressing his remarks specially to the work of the colleges. He caustically criticised the establishing of practitioners' courses by one of the leading colleges as dangerous and destined to work much injury in the progress of the profession. The report was followed by a very interesting discussion, participated in by Dr. Hoskins, President Pearson, Secretary Stewart, Dr. Williams, and Chairman Baker. The two-year schools and those establishing questionable practitioners' courses came in for a round of criticism.

The Librarian, Dr. W. L. Williams, gave a systematic report of the volumes of the proceedings in his keeping, the number distributed during the year, and of those to whom sent, including new members, health boards, publication committee, and others. He recommended for consideration a plan by which graduates and non-graduates ineligible for membership might obtain copies by an annual contribution.

(To be continued.)

ATLANTIC CITY, N. J., SEPTEMBER 3, 4, AND 5, 1901.

President Butler, of the Association, has just announced the following Committee of Arrangements: Dr. William Herbert Lowe, 188-190 Ellison Street, Paterson, N. J., Chairman. Drs. T. Earle Budd, Orange; T. E. Smith, Jersey City, N. J.; Robert W. Ellis, New York City, N. Y., and W. Horace Hoskins, Philadelphia, Pa.

President S. J. J. Harger, of the Pennsylvania State Veterinary Medical Association, has just announced the following committee of that organization to co-operate with the profession in New Jersey in promoting the success of the Atlantic City meeting—Drs. Leonard Pearson, C. J. Marshall, W. Horace Hoskins, and Francis Bridge. President Harger will personally direct the efforts of the Keystone State Committee.

The newly elected President of the Keystone Veterinary Medical Association, Dr. J. D. Houldsworth, will shortly announce a committee of that body to aid the veterinarians of New Jersey in completing the programme of entertainment of those who will visit New Jersey's Mecca by the Sea in September, 1901.

Treasurer Lowe, of the A. V. M. A., says the Atlantic City meeting in his own State will be the first meeting of the new century, and it must rival or excel any meeting of its kind on this continent. Every one who knows Lowe knows him to be a hustler.

The annual meeting of the Veterinary Medical Association of New Jersey, which will be held in Trenton on January 10th, will enter thoroughly upon the work of preparation for the coming meeting of the A. V. M. A. at Atlantic City.

A special effort will be made to have the surgical clinics occupy a half day and to be conducted upon a high plane in thorough keeping with the advances all along the lines of surgery.

Maryland should take an active interest in the Atlantic City meeting. Resident State Secretary Nolan, of that State, should call together the stalwart supporters of the A. V. M. A., and plan for a strong interest in behalf of Maryland's strong arm of the profession. Dr. Dougherty would fittingly direct her interests as chairman of such a body.

Pennsylvania will not wait for her meeting in March to get in line to assist the meeting at Atlantic City. President Harger has already taken action. President Houldsworth will no doubt ask a representative of Delaware to aid the committee from the Keystone Veterinary Medical Association. The JOURNAL suggests the name of Dr. Thomas B. Rayner as chairman of the Keystone representatives. His almost constant attendance at the meeting in other cities for ten years makes his services valuable in advice and effective work.

September in Atlantic City is one of the most delightful periods of the summer season. The rush of July and August are past, and while the city is in gala attire, the hotels in friendly rivalry over the entertainment of their guests, the attractions of the boardwalk undimmed, the comforts to be obtained are so much better than at any other period of the year.

The Amalgamated Associations of New Jersey will appoint a strong committee to direct the affairs incidental to the coming meeting, and will invoke the aid of a large contingent of the South Jersey veterinarians.

Early in November several veterinarians from Washington, D. C., called at the JOURNAL office to express their favor of Atlantic City for 1901.

Those visiting the Pan-American Exposition in Buffalo on their way to Atlantic City will have the opportunity of viewing a milking machine, built on the pneumatic system, with valves, suction rubbers, etc. It is exhibited by a Scottish firm.

The Burlington Route, that has contributed so much to the success of a number of the meetings in the West during the past five years, will make a special effort to send from the great Western centres of this railroad large delegations to Atlantic City *via* Buffalo and Niagara Falls. The uniform courtesy of the officials of this extensive route will ever be remembered with gratitude by the members of the A. V. M. A.

ASSOCIATION MEETINGS.

A meeting of the South Dakota State Veterinary Medical Association will be held at Station Hotel, Huron, South Dakota, January 15, 1901.

The Iowa State Veterinary Medical Association will hold their annual meeting in Des Moines, January 23 and 24, 1901.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

(Continued from page 709.)

Reports of Committees (continued).

Sanitary Science and Police. The importance of and progress in this line of work was read as a report from Dr. Jacob Helmer, as follows: My report, also two communications from members of the Committee on Sanitary Science and Police, one received from Dr. J. L. Bradley, of Mercersburg, Franklin County, the other from Dr. H. P. Keely, of Schwenksville, Montgomery County, have been forwarded to the Association through our worthy Secretary, Dr. Ranck.

Dr. L. A. Klein, of Philadelphia, replying to my request for a report, promised to send one, but at this writing no further communication has been received. While we should have been happy to have received the doctor's paper, we hope that he has decided to attend the meeting and present the report in person. It is also hoped that communications from other members of our committee who have not reported to me may be personally presented for the pleasure and the instruction of the Association. Could each member of the committee have sent a report or communication it would have been my pleasure as chairman to weave the material into one paper, but since some may present their reports in person or through other members I deemed it best to have each communication read by itself.

In Lackawanna County (the one in which I practice) there has not been anything unusual in the country sections this season, unless it is influenza. In my immediate neighborhood—Scranton and suburbs—there has been an unusual amount of this disease, which assumed the special form of pink-eye. The enzoötic this year is very mild. While we usually have the disease present with us during the spring and fall, this year it has flourished during the hot months of summer. It is interesting to report that in scores of cases treated not a single complicated one has come under my observation. A farmer reported at my office about two months ago that some of his cattle were suffering with what appeared to be foot-and-mouth disease. From his description it resembles very closely the description given us of the European plague. He reported that his herd was convalescent, members of it having been afflicted with it from one to two weeks. The trouble was benign, and tended to recover without treatment. I did not meet the man personally. He did not leave his address, and I heard nothing further of the malady.

But while the livestock interests throughout Lackawanna County have not suffered in an unusual degree this year from any fatal maladies, the neighboring county, Wayne, is passing through an uncommon experience with what appears to be anthrax. Perhaps there is no county in the State which can be proud of as many beautiful lakes as Wayne. Over five hundred fine bodies of water there have been graphically described. In this undulating country miniature swamps and marshes exist abundantly in the cultivated districts. The marshes are the bottoms of beautiful lakes of former years. The sloping land also terminates in ravines and swales. Little marshes may be seen leading into these from the hillsides. Generally speaking, these sections have an impervious subsoil. The ground is rich and bears coarse grasses of edible varieties in abundance. In a dry season the vegetation here would flourish, since there is sufficient water and moisture in the soil to supply the roots of the grasses. Cattle would crave the lowland in preference to the upland pastures, because a more succulent and tender morsel could be found there. The summer in Wayne County has been very dry, and the herbage on the upland has become tough and innutritious, and the cattle naturally tend to rummage in the marshes. In a section of country where the conditions for anthrax exist in the surroundings and soil, and when supplemented by drought, may not other varieties of vegetable parasites and miasmatic poisons, of whatever nature they be, find opportunity to exist in unusual abundance upon the grasses? It is possible, also, that a poisonous weed or shrub may grow in the bottoms to which the cattle have been led this season. Something poisoned many a herd of cattle in Wayne County, and the question is, Was it anthrax or some other malady? In order that you may understand the subject more in detail I will give you the substance of my first report to Dr. Pearson of the investigation of the disease on the farm of Mr. J. R. Mills, in Oregon township, Wayne County, Pa., on the 24th instant:

"I found that the disease which afflicts Mr. Mills' herd is confined to a single field or pasture containing about twenty acres. The field has been used for pasturage at least five years, and until this season no fatal sickness had appeared there. In a herd of eighteen head, composed of grade and common stock, quite uniformly one and two years of age, there have been seven deaths up to the time of my visit to the farm. The field in which the disease appeared is approximately in the form of a rectangle. It slopes, and the whole lower part forms one side of a swale. The field is three-quarters dry. The remaining fourth is marshy ground, which extends upward from the swale nearly to the upper border of the field. The marsh does not occupy the centre, but rather one side—the right side of the field as viewed from the swale. The earth in the marsh is dark in color and is soft. The feet of the cattle sink into it. There are many little bogs with holes between them, containing water. The vegetation in the marsh is thick and rich. It consists mainly of coarse, wild grasses, interspersed with some tame varieties. The marsh affords the best fodder in the field, especially during the drought which the locality is now experiencing. The rest of the field is rough and rocky. There is an abundance of croppage, but it is dry and tough as compared with the grass in the marsh. A very careful search did not reveal any poisonous shrubs that had been eaten by the cattle. There were some laurels, but the leaves were intact. The season for this section of Wayne County has been unusually dry. All summer there has been no rain sufficiently to soften the ground on Mr. Mills' farm. The rainfall has consisted of a series of showers, some hard and some light. These showers were almost invariably followed by warm sunshine, which soon dissipated the good effects of the rain. The weather on cloudy days has been hot and muggy. But while three-fourths of the pasture field in question was hard and dry, the remaining one-fourth—the marsh—while more dry and exhausted than ever before, still contained considerable water and moisture. The stock in this field, while not exactly plump and round, were in very good condition, considering the season. It would appear that the bulk of the nourishment was furnished by the marsh. In addition, the cattle looked healthy, with the exception of one yearling, which appeared a little thin and was quite dull and dumpish. This animal appeared to be a fresh victim of the malady. Mr. Mills has been in the habit of separating the sick from the healthy animals as soon as a case presented itself. The sick are enclosed in a pen in a place where they cannot possibly contaminate other cattle. Of this method I approve most heartily. Case No. 1 was found dead in the field about two weeks ago. It had evidently died a day or two previously. There were no external swellings, but the body was bloated and the legs puffed. There was an exudate of bloody material from the nostrils. The last passage of fecal matter resembled tar, as if it had been mixed with black blood. Case No. 2 was found dead a day or two later. The appearances were the same. Case No. 3 was also found dead. Bloody discharges the same; body and limbs bloated. Skin of a dark-green hue. These three animals died during the first week. During the second week four became ill and died. These were observed while alive. The deaths followed each other from day to day, with evidently an increase in the percentage of death-rate. The symptoms showed by these four young animals during their short period of illness were very uniform. In no instance did a case live over five days. Death occurred in from three to five days.

"The symptoms as observed and told me by Mr. Mills are as follows: Dulness was about the first thing to indicate anything wrong. The eyes had a glassy appearance. The muzzle was hot and dry. The back along the spine felt particularly warm. No chills were observed, but the coat became dry and staring. In one case a swelling about the size of the hand appeared on the left side of the body just back of the elbow. Dark-colored blood oozed from the swelling. Mr. Mills did not notice whether this swelling was crepitant. In other cases the ankle was swollen, but external swellings were the exception in all these cases, and principally affected the ankles. In no case did the skin around the swollen ankle crepitate on pressure. The appetite was very feeble; only a little meal or apple was partaken of. Water was only sparingly consumed. Grating or grinding of the teeth was almost a constant symptom. As the disease advanced the animals were listless. There was no pain; the back was arched. Emaciation, exhaustion, and weakness followed rapidly. In walking the animals had a staggering gait. The force of the disease seemed to be exerted upon the hind parts. There was no cough, no difficult breathing. Finally, a bloody discharge issued from one or both nostrils, and the passage resembled tar mixed with blood. The urine was voided frequently and was bloody in appearance, but not particularly of a dark color. Shortly after the appearance of these latter symptoms death ended the scene.

"Case No. 7 died during the night previous to the day of my arrival. It was buried in the morning. We had it exhumed and held an autopsy. Externally there were no swellings. The carcass appeared quite normal. On opening the abdominal cavity, serum, colored with blood, flowed freely. The subserous connective tissue in the neighborhood of the kidneys was infiltrated with blood and serum. Bloody extravasations existed in the mesentery and upon the outside of the duodenum, colon, and rectum. A few of the mesenteric glands were enlarged; they were engorged with black blood. Dark, hemorrhagic spots were found on the muscles under the spine and on the muscles lining the cavity of the pelvis. The small intestines, with the exception of the duodenum, were quite free from alterations. Portions of the rumen as well as of the large intestines were black and blue, and were moist, with a dark-colored exudate on the inner walls. The kidneys seemed slightly larger than normal, but on section looked natural. There was no engorgement, and the fluid issuing from the cut surface was of a bright-red color. It seemed like urine thinned with blood. The liver was enlarged, very friable, in places mushy. Its color resembled pale clay; not black or dark. The spleen was normal in size, and with a section of the kidney, liver, and ear it has been shipped to you intact. The lymphatic vessels of the portal system were distended, and spots of the retroperitoneal tissue were dropsical. The peritoneum was inflamed in patches and the subperitoneal tissue was infiltrated with serum and blood. The organs of the thoracic cavity, aside from numerous pin-points of congestion in the thoracic cavity, were red, as were also the capillary vessels of the peritoneum of the small intestines. The brain, larynx, and trachea were not examined. The body as a whole was not decomposing rapidly; in fact, it appeared quite fresh.

"Physical examination of Case No. 8 revealed dulness, eyes glassy, and diminished appetite. The conjunctiva was of a yellowish-brown color, and here and there could be observed a petechial point. Non-crepitant swelling, uniformly distributed around the right hind ankle, was observed. The temperature was 105° F. and the pulse frequent and sthenic. This case was ordered to the pen and placed under treatment.

"Since a positive diagnosis of anthrax in many of its forms depends upon the finding of the specific germ, I did not make a positive statement, reserving such a positive decision until after we shall have heard from the bacteriological examination of the specimens sent you. Of the infectious character of the disease there seems no doubt. The objective symptoms, as well as the results of the autopsy, point mainly to death caused, in this case, by subacute bacteridian anthrax. It is evident that the malady had its origin in the field previously described. To stop the invasion, therefore, the first thing ordered done was to remove the stock from this into another field. A fence is to be built around the dead carcasses that were buried near each other, just across the fence in the adjoining field, while the grass and ground around them are treated liberally with lime. Those found dead were buried in the field where each victim fell. This pasture is now abandoned.

"In conclusion, allow me to say that the section of Wayne County where these cases occurred seems peculiarly adapted to furnish the conditions necessary for the development of anthrax. The drainage from the hills runs into the swale. The stream in the bottom of the swale, while not exactly stagnant, moves very slowly, or, rather, leaks out. The marshes that extend from the swales upward into the pasture fields are especially dangerous; but, more than this, the fact that the water in the bottom of the swale appears lower this season than usual, thus permitting some patches of ground which were submerged in the early part of the season to become exposed to the air and sunlight, thus giving rise to a rich vegetation upon them, have probably been the sources for the development of the dangerous vegetable parasite, the mischief-maker, which these young cattle have taken into their systems by feeding upon the bogs. Add to this the natural formation of the ground, the peculiar lay of the land, and also the fact of an alternating wet and dry season, especially the latter—an unusual season for this section of Wayne County—and we have some good reasons to contemplate why cattle should die of anthrax here as well as in other portions of the State of Pennsylvania. Kindly let me hear from you as soon as the bacteriological investigation has been completed. If anthrax is decided upon, complete instructions must be given Mr. Mills as early as possible."

Dr. Pearson subsequently reported that the specimens had spoiled in transit, and requested me to send fresh ones. He also took the position that the disease might not be anthrax, inasmuch as it resembled a few similar outbreaks in the State that were now known not to be infectious. Vaccine was, however, promptly forwarded to prevent further mischief by the disease in case it should be anthrax. Two head from the remaining part of this herd have been taken sick since being removed to upland ground. The last case was taken seventeen days after the change. We are on the lookout for microscopical material, and do not wish to see the season pass without the problem being solved. Finally, speaking for myself, I believe the disease is anthrax, since not one of the elements necessary to show a case of anthrax is missing, unless the specific germ cannot be demonstrated by microscopical examination, or another germ is found in its place that causes a similar disease.

From Dr. John L. Bradley, of Mercersburg, Franklin County: I would report to you that I am in the midst of an outbreak of rabies, with about fifteen bitten dogs and a lot of contrary people to deal with; one man and a child bitten. So far nobody has been sent to New York for inoculation. Tuberculosis exists to some extent, but a great many cases have been put out of the way by the State Board. By the way, I think this Board should be commended for the good work it has done, also its most efficient head, Dr. Leonard Pearson. Cows for dairy purposes are coming in from Maryland and other States, and I have some work in that line, also some requests from private families asking that their animals be subjected to the tuberculin-test before using the milk further. An outbreak of some disease among swine, which the State Board is now investigating, and report that they find nothing on post-mortem; also on two farms an outbreak of specific ophthalmia in the cattle, all of which were blind for a time, but are now improving. I believe that is all I have from a sanitary science point of view.

From Dr. H. P. Keely, of Schwenksville, Montgomery County: Our county is blessed with freedom from many of the contagious diseases of cattle except tuberculosis, of which we have our full share, although it appears to be growing less, and I think that most of the worst stables have been cleaned out in this section. We had considerable of that peculiar form of influenza among shipped horses this spring, with a pretty high rate of mortality. We have had about our usual share of parturient paralysis, but with the use of the potassium iodide treatment there have been more recoveries, and I believe that with the prophylactic treatment (lighter feeding during the dry period and physic shortly before calving), which we advise our clients to use, the number of cases of milk-fever are decreasing.

Dr. C. C. McLean made a short verbal report. These reports were discussed by Drs. Jobson, Pearson, and Hoskins.

(To be continued.)

THE MISSOURI VALLEY VETERINARY ASSOCIATION.

The twenty-fifth regular meeting was held in Kansas City, October 29, 1900. The following veterinarians were present: Drs. W. R. Andress, R. Blanch, S. E. Bennett, F. F. Brown, R. H. Carswell, W. J. Fretz, John Forbes, B. F. Kaupp, R. C. Moore, N. B. Smith, S. Stewart, D. C. Hannawalt, James Wilson, J. B Wright, E. Lee, and about fifty veterinary students.

From 2 to 5 P.M. a very instructive surgical clinic was held in the operating-rooms of the Kansas City Veterinary College, which included a variety of recent operations.

At 7.30 P.M. the meeting was called to order by the President, Dr. John Forbes, of St. Joseph. After roll-call and reading of minutes of previous meeting, Dr. S. Stewart, of Kansas City, Chairman of the Legislative Committee, gave an account of the work being done by that committee and by the Committee of the Missouri Veterinary Medical Association toward securing legislation to regulate the practice of veterinary medicine in the State of Missouri. The report was accepted and the committee continued.

The following programme was presented: Dr. S. E. Bennett, "Age of the Horse as Revealed by the Teeth." Dr. S. Stewart, "Report of the Thirty-seventh Annual Meeting of the American Veterinary Medical Association." Dr. B. F. Kaupp, "A Report of the Ninth Annual Meeting of the Missouri Veterinary Medical Association." Drs. E. J. Netherton and C. E. Steele, "Reports of Cases." A generous and spirited discussion was elicited by the papers.

The next meeting will be held in St. Joseph, in December, 1900.

B. F. Kaupp, D.V.S.,
Secretary pro tem.

PERSONALS.

Dr. Charles A. Dohan, of Darling, Pa., was one of the riders at the Thanksgiving Day exercises of the Farmers' Club of Philadelphia.

Dr. H. D. Fennimore, of Knoxville, Tenn., retired from veterinary practice on November 1st. He thinks the field offers a good opening for a young man.

Dr. H. L. B. Coote, formerly of Cheyenne, Wyoming, has located at Chicago, Ill.

Dr. W. F. Heyde, of St. Louis, Mo., has been suffering from an infected right hand—from septic infection.

Dr. H. D. Gill, of New York City, was the winner of many brushes with fast ones in October on the "Speedway" behind "Rockdale Boy," whose sale was confirmed at a good round figure early in November.

Veterinarians of the National Horseshow, Madison Square Garden, New York, were Drs. Wm. Sheppard, T. G. Sherwood, and John M. Heard.

Dr. E. M. Ranck, of Philadelphia, has joined the list of active supporters of building associations.

Dr. W. E. Orr, of the Bitter Root Stock Farm of the late Marcus Daly, had an experience coming East with a consignment of horses to the Madison Square Garden sale that he will remember for a long time. One of the horses under his care became seriously ill with nervous symptoms of a severe character, producing a frenzied condition, which Dr. Orr had to deal with in the car alone.

Dr. R. S. Huidekoper spent several days in Philadelphia in the latter part of November.

State Veterinarian Pearson, of Philadelphia, Pa., was an attendant at the fat-cattle show in Pittsburg early in November.

Dr. B. F. Bachman, of Strasburg, has removed to Pittsburg, Pa., where he will continue in the practice of veterinary medicine.

Early in November could be noted walking down Broad Street, Philadelphia, Drs. Huidekoper, Pearson, and Hoskins, earnestly in conference over army legislation prospects.

Dr. H. D. Gill, of New York City, was a winner of a blue ribbon at the National Horseshow in New York City in November in the trotting-bred class, with his well-known mare, "Rosalie," winning over such a famous blue-ribboner in this class as "Altamont."

Dr. Leonard Pearson, of Philadelphia, was a visitor to the "Smoky City" early in November.

Dr. Thomas Castor, not Charles Castor, was elected to membership in the A. V. M. A. in September. Dr. Castor is a graduate of the Veterinary Department, University of Pennsylvania, class of 1894. He is now located at Las Vegas, New Mexico, as an inspector of sheep under the Bureau of Animal Industry.

Dr. W. H. Dalrymple, of Baton Rouge, La., has just returned from Europe.

Dr. A. F. Schrieber, of Philadelphia, takes an active interest in the food-show held annually in the "Quaker City." Someone was unkind enough to say that he was a fair representative of what Mrs. Rorer's cooking does for her subjects.

Dr. J. P. Turner, of Washington, D. C., was a visitor to Philadelphia in November on leave of absence.

Dr. Harry D. Martin, of Buffalo, N. Y., was a late visitor to Atlantic City and Philadelphia in October.

Dr. H. A. Paget, of Scranton, Pa., has returned from his European tour much improved from his impaired physical condition.

Dr. Lawrence A. Nolan, of Baltimore, was elected secretary of the Bryan-Stevenson and Nicholas W. Steele Democratic Club at its organization early in October.

Dr. A. G. Hopkins, of the Wisconsin Agricultural Experiment Station, is a frequent contributor to *The Farmer's Advocate*, published at London, Ontario.

Dr. Eugene Battin, of the United States Quartermaster's Department, and recently located at Manila, P. I., is on a furlough to the States, and spent a portion of his time in and about Philadelphia in October.

Dr. John J. Maher, of Philadelphia, maintains an attractive dog-ambulance in his practice.

Dr. J. G. Annand, of Minneapolis, Minn., has been charged with the field-work of hog-cholera in that State under the direction of the State Veterinarian.

Dr. C. J. Marshall was veterinarian at the show of the Philadelphia Kennel Club in November.

Dr. A. T. Peters, of Lincoln, Neb., is spending many hours among the farmers at the Institutes held throughout the State, enlightening them on the work of the Veterinary Department of the State Experiment Station.

Dr. W. S. Kooker, of Philadelphia, has been in poor health for some time, at times unable to care for his practice.

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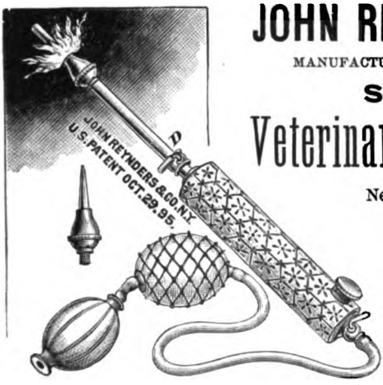
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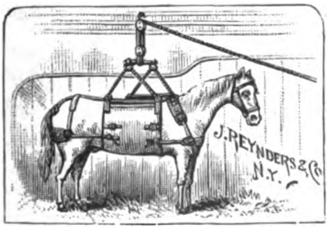

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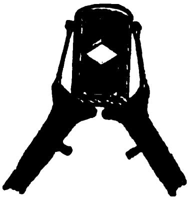

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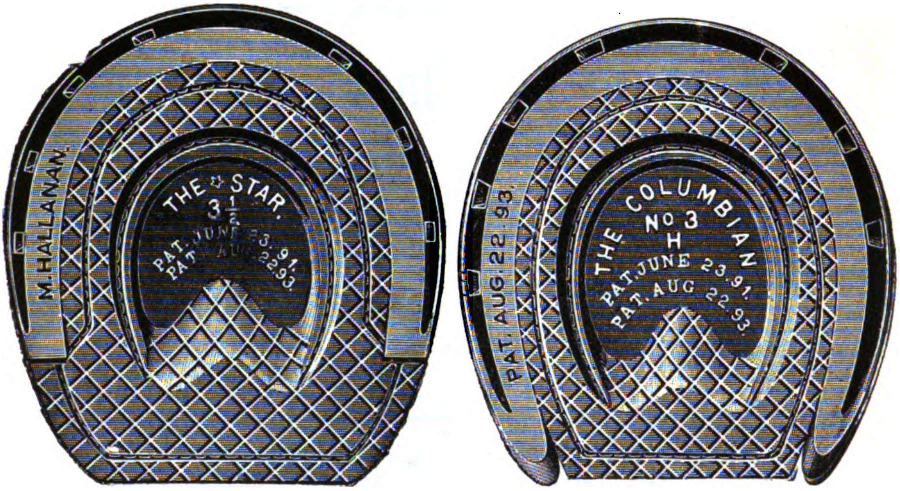
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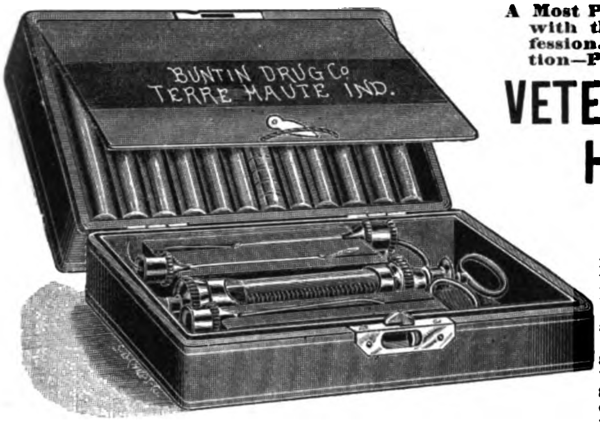

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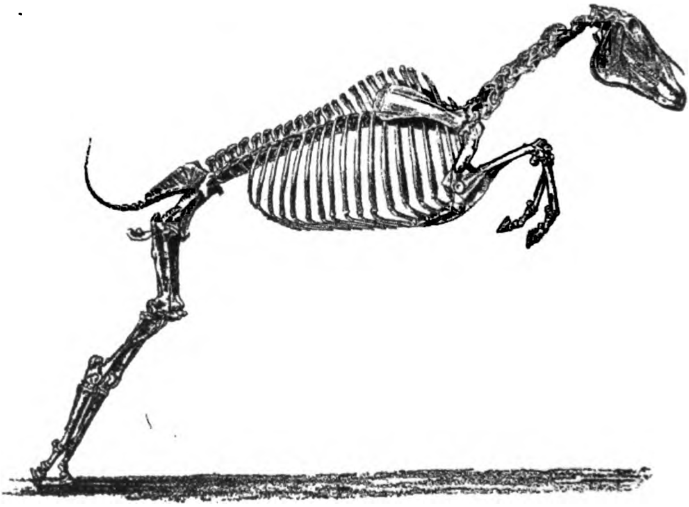

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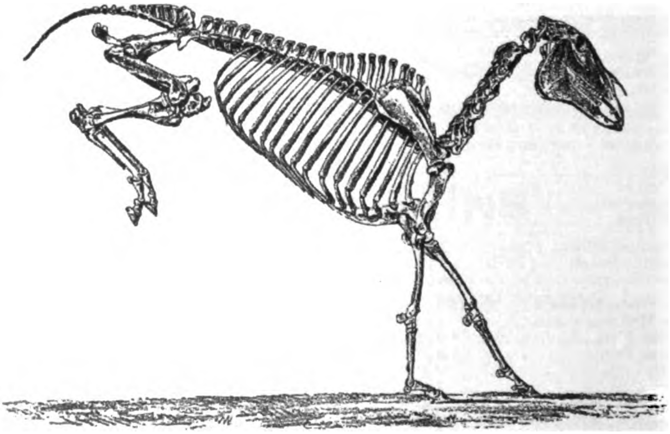

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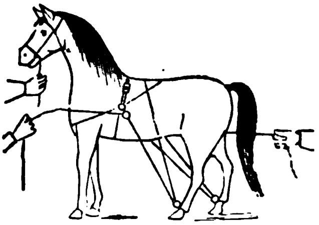

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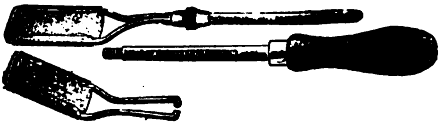

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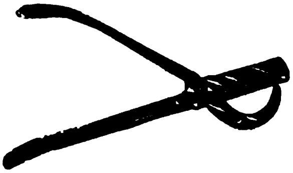

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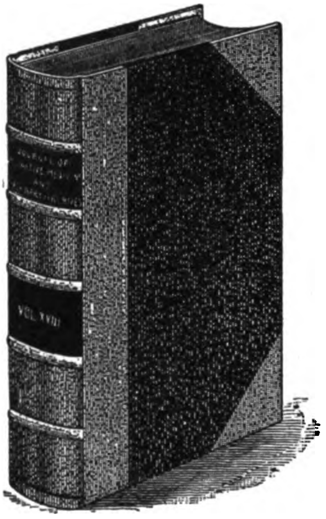

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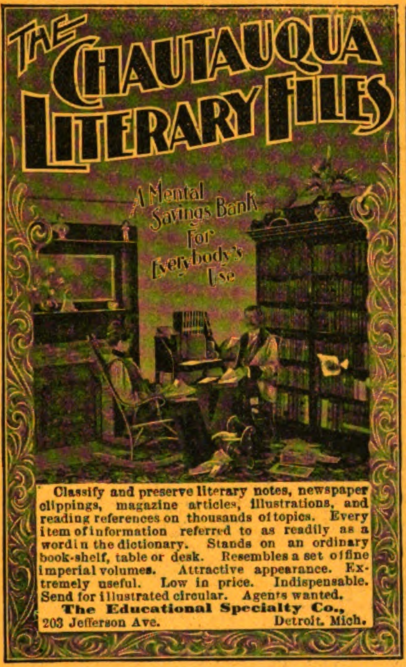
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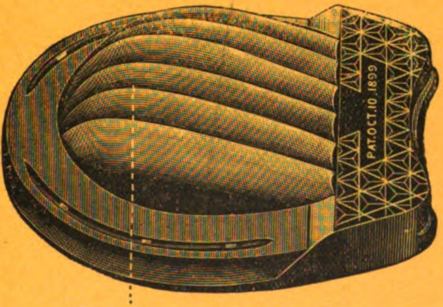

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